HISUN

GRAB SOME SUN

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READ THIS MANUAL CAREFULLY

For questions regarding this UTV, please contact HISUN at:
(972)446-0760
hisunmotors.com

Rev. 07231501

No one under the age of 16 should operate this vehicle.

Provincial / Municipal governments have different regulations pertaining to owning and operating an off-road vehicle; learn the regulations in your area.

HS 500/700

OWNER'S MANUAL

INTRODUCTION

Congratulations on your purchase of the HS 700 UTV. This Owner's / Operator's manual will provide you information regarding safe operation, operational instructions, maintenance and care. Fully understanding and following all of the instructions in this manual will provide the knowledge needed to have safe operation and longevity of the UTV.

For questions regarding this UTV, please call (972) 446-0760.

IMPORTANT SAFETY MESSAGES

- **READ THIS MANUAL CAREFULLY AND COMPLETELY BEFORE OPERATING YOUR UTV. MAKE SURE YOU UNDERSTAND ALL INSTRUCTIONS.**
- **PAY CLOSE ATTENTION TO THE WARNING AND CAUTION LABELS ON THE UTV.**
- **NEVER OPERATE THE UTV WITHOUT PROPER TRAINING OR INSTRUCTION.**
- **THIS UTV SHOULD NOT BE RIDDEN BY ANYONE UNDER 16 YEARS OF AGE.**

IMPORTANT MANUAL INFORMATION

FAILURE TO FOLLOW THE WARNINGS CONTAINED IN THIS MANUAL CAN RESULT IN SERIOUS INJURY OR DEATH.
Particularly important information is distinguished in this manual by the following notations:

The Safety Alert Symbol means **ATTENTION!**
YOUR SAFETY IS INVOLVED!

Failure to follow **WARNING** instructions could result in severe injury or death to the machine operator, bystander or a person inspecting or repairing the machine.

A CAUTION indicates special precautions that must be taken to avoid damage to the machine.

NOTE:

A NOTE provides key information to make procedures easier clearer**.**

IMPORTANT NOTICE

This UTV is designed and manufactured for **OFF - ROAD** use only. It is illegal and unsafe to operate this UTV on any public street, road or highway.

This UTV complies with all applicable **OFF - ROAD** noise level and spark arrester laws and regulations in effect at the time of manufacture.

Please check your local riding laws and regulations before operating this UTV.

When the temperature is below -4°F (-20°C), park the UTV in a place where the temperature is higher than -4°F (-20°C). Operate the UTV after the UTV has warmed up. Please see page 7-3 on the warming up process.

Follow the proper parking procedures when the temperature is higher than 100°F (38°C): turn off the engine; make sure the radiator fan is on for 3 minutes before turning off the power switch.

Starting the UTV for the first time will take longer because the fuel will need reach the fuel injectors. To start the UTV the first time, hold the ignition key on at 5-second intervals. Allow the starter to rest 15 seconds between each start attempt.

Introduction HS 500/700

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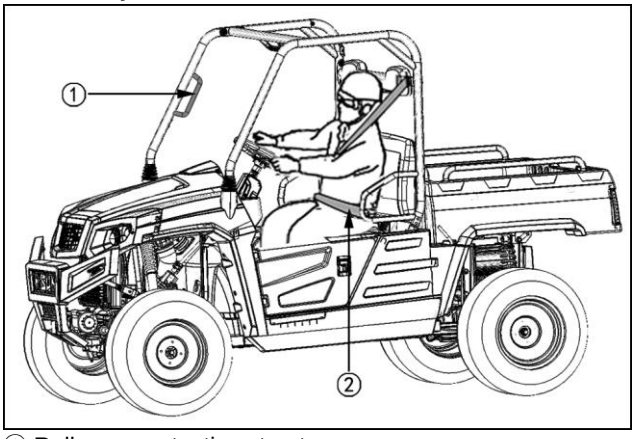
SAFE OPERATION

All operators, including experienced UTV drivers or passengers, should carefully read and fully understand this Users Manual, and operate strictly as the manual states in order to achieve the best performance and avoid accidents. Others who will use your UTV should be trained on how to operate the UTV and be required to read this manual before operation.

1. Safety Instructions:

1. Understand this UTV by reading this manual and understanding all the components of the vehicle. Only start and operate the vehicle after you have finished reading this manual.
2. Pay close attention to the warning and caution labels on the UTV.
3. Understand completely and learn to use the safety devices (roll-over protective structure, seat belts), and never change the original safety devices. If safety devices are damaged, consult your local dealer for replacement. Always use seat belts.



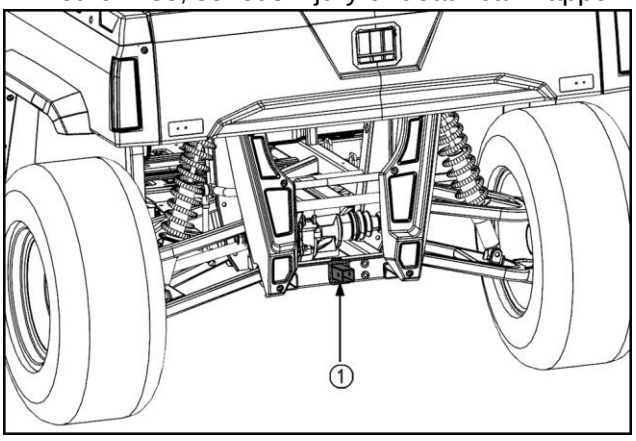
① Roll-over protective structure；
② Seat belts；

4. Do not wear loose articles of clothing during operation, as these can be drawn into moving parts on the vehicle and could cause a severe injury to occur.
5. You should always wear protective equipment, such as helmet, boots, eye protection, ear protection, and gloves etc.
6. Only a qualified driver with driving license should operate this UTV. Never operate after drinking alcohol, using drugs or controlled substances, or while fatigued.
7. Always perform the pre-operation checks as following:

1. Check seat belt for wear or damage, if necessary, replace it.
2. Check brakes, throttle, brake pedal and other mechanical parts for proper operation. If you discover any irregularities, replace related parts as necessary. Periodically check the fittings and fasteners.
3. Check engine oil level and engine coolant level.
4. Check that the UTV is equipped to handle the surroundings.
5. Check and keep vehicle clean. Sludge, grease and debris can cause a fire and severe injury.
6. Passenger quantity and loading:
   1) Only the driver and one passenger inside cab. It is suggested that children under age of 5 not be allowed as a passenger.
   2) Single-row vehicle's loading limit is 660lbs (300KG). Reduce the loading weight according to road conditions. Never exceed the weight limits for operation.
   8) Never allow unauthorized persons to repair this UTV. This may affect vehicle performance and cause injury.

2. Operation

1. Start the engine only in an open ventilated area. Carbon monoxide is colorless, odorless and is emitted from the engine and can cause death in areas with poor ventilation.
2. Never start the vehicle or operate the gear selector unless seated in the driver's seat.
3. Never start the engine until the select lever is placed in "N" position and the brake is in the brake position.
4. The driver and passenger shall always wear their seatbelt while the vehicle is being operated.
5. Operators of the UTV should not wear earphones.
6. Use the proper trailer hitch to haul cargo, otherwise, serious injury or death can happen.



① Trailer Hitch

7. Do not accelerate quickly when starting the engine, especially driving on rough terrain as this can cause injury or death. Press the accelerator pedal slowly.
8. Drive at slow speeds before braking.
9. When the differential is unlocked (DIFF.LOCK is off) the front/rear wheels can turn at different speeds to assist in the stability of the vehicle.
10. Never drive over terrain such as a ditch, a hole, dams, excessive mud, or the vehicle can get stuck because of the vehicles weight.
11. Always pay close attention to your surroundings, and check for streets, trail intersections or other obstacles.
12. Always use signals in advance of turns.
13. Do not allow entrance or exit of the vehicle while it is moving.
14. Keep the floorboard free of debris that can obstruct the ability to use the brake pedal.
15. Position your hands on the steering wheel. Always keep your hands and feet inside passenger area of the vehicle. Never try to stand while operating the vehicle.
16. Do not tow passengers, or attempt to jump the vehicle.

3. Children safety instructions

Always watch children when they are around the vehicle. Children like to imitate adults and this could lead to an accident.

Do not leave children alone beside the vehicle.

Keep children from the operating area of the vehicle.

Turn off the engine and remove the key when children are in the operating area.

Never carry children in the cargo area. This is very dangerous to children. Children under age of 5 should not be allowed in this vehicle.

Never allow children to touch or climb on the vehicle, even if they are under adult supervision.

Always check for people or obstacles behind the vehicle before shifting the vehicle into reverse. Avoid a collision with an obstacle or person.

Park the vehicle in a firm, flat area. If parking on a slope, you should use the parking brake then remove the key.

4. Driving on a slope

Be cautious when riding on a slope, as this is the main reason for loss of control, and overturn, leading to severe injury or even death.

1. Drive in a straight line on a slope at a low-speed.
2. Reduce weight when riding on a slope or rough terrain.
3. Avoid the sudden application of the brakes when you go uphill or downhill. Be more careful when vehicle turns on a slope.
4. If you start to lose momentum or need to park when climbing, use the hand lever brakes to come to a stop. Release the brake and begin to coast down the hill.
5. If do not believe you can operate the UTV safely in reverse do not attempt to ascend the slope any further.
6. Riding in mud, a ditch, and on slopes will increase the risk of an overturn. Be more cautious when operating in 4WD, vehicle traction will increase and it is easy to misjudge for vehicle's ability to climb a grade.
7. Drive gradually and slowly when climbing. Avoid suddenly changes of vehicle speed or direction.

5. Driving in harsh conditions

1. Vehicle can be operated during the day or under good light conditions.
2. Under all conditions, both operator and passengers should wear helmet and protective equipment.
3. The Driver should slow down according to road conditions, terrain, visibility conditions.
4. Be cautious when driving over a ditch, stone roads or hidden obstacles.
5. Avoid operate in the unknown depth of waters. （water depth can not exceed axle）

6. Driving at high speed

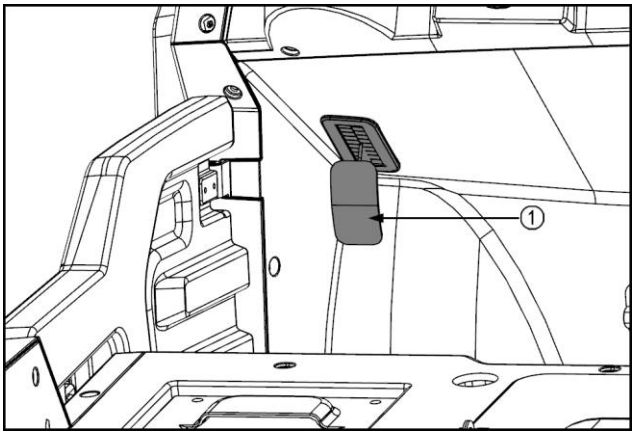
1. Check the condition of the front and rear wheels. Be cautious when driving over a ditch, stone roads or hidden obstacles.
2. Pay attention to the difference of braking performances between two and four-wheel drive. Slow down when turning. Turning at high speeds, may result in overturn or even death.
3. Turn on your headlights at high speeds.
4. Drive only when the vehicle speed can be controlled.
5. Do not use DIFF.LOCK when driving at high speeds. This may cause loss of control of the vehicle.
6. When driving at high speeds, sudden turning of the steering wheel will reduce vehicle stability. Never sharply turn the steering wheel at high speeds.

7. Instructions for carrier

1. Never carry a passenger in the cargo area.
2. Evenly distribute the cargo to maintain proper stability. Avoid overloading the carrier. Cargo should be securely attached.
3. Reduce loaded weight when driving on poor road conditions or on steep inclines.
4. Do not put your hands or your body under the carrier when the carrier is up. Avoid driving before securing and locking the cargo bed.

8. Parking

1. To release the parking brake, depress the brake pedal.



① Parking brake.

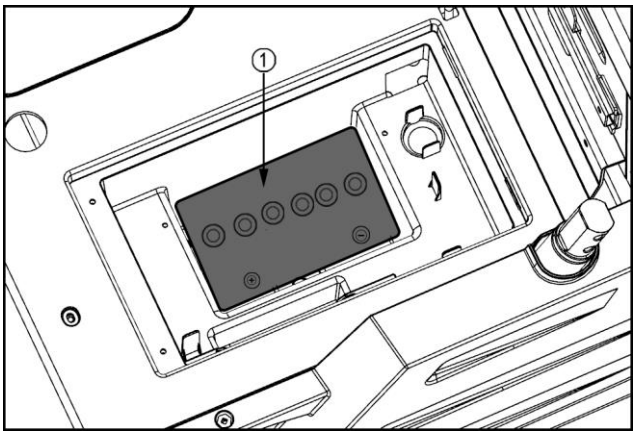
9. Transportation

1. Avoid dragging the vehicle behind another vehicle. Use a trailer or truck to transport the vehicle.
2. When loading or unloading, pay attention to your surroundings and others in the area.

9. Maintenance

Stop the vehicle and park it on level ground. Pull the parking brake and remove all cargo. Place the shift lever in the “N” position, stop the engine and remove the key.

1. When working next to the engine, exhaust, or radiator, work only after it has cooled down.
2. Wait for the engine to stop running and cool down before checking the coolant level. Otherwise, you could be burned by hot fluid or steam.
3. No smoking when adding electrolyte or refueling. The fuel tank and battery should be kept away from sparks. The battery produces hydrogen and oxygen during charging and this could accelerate the risk of explosion.
4. Read and follow the instructions before replacing the battery.
5. During maintenance, first aid kits and fire extinguishers should be placed at your fingertips.
6. During maintenance, you should disconnect the battery cables.



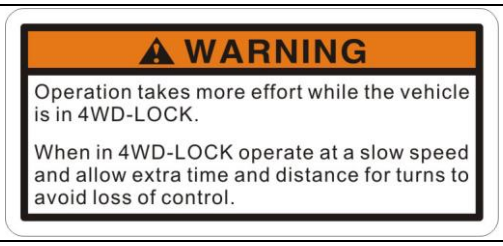
① Battery

7. Do not open the radiator cap before coolant has cooled down. When the coolant is cold, open slowly and let the coolant pressure reduce, and then open radiator cap. Check for the coolant level in the coolant reservoir. If necessary, add coolant.
8. Tires should be mounted on rims with special equipment, only by professionals.
9. Keep the specified tire pressure to ensure driving safety.
10. Elevate the vehicle and place a suitable stand under the frame when removing the wheels. Be sure to re-tighten the wheel nuts to the specified torque.

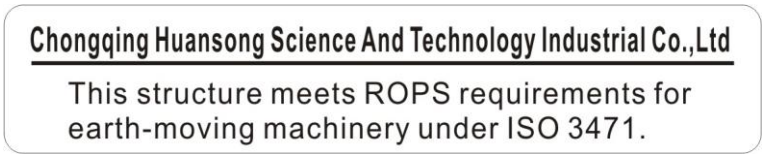
11. Warning and caution labels

(1)

(2)


⚠ WARNING
Operation takes more effort while the vehicle is in 4WD-LOCK.
When in 4WD-LOCK operate at a slow speed and allow extra time and distance for turns to avoid loss of control.

(3)


Chongqing Huansong Science And Technology Industrial Co.,Ltd
This structure meets ROPS requirements for earth-moving machinery under ISO 3471.

(4)

⚠WARNING:
EXHAUST FUMES MAY CAUSE HARM
Engine exhaust from this product contains chemicals, known in certain quantities to cause cancer, birth defects, or other reproductive harm.

(5)

⚠WARNING
Severe INJURY or DEATH can result if you ignore the following guidelines:
• Maximum load in cargo bed is350lbs(159kg)
• Never carry passengers in cargo bed. Passengers can be thrown off causing serious injury or death.
• Cargo can affect handling and stability. Read Owner's Manual before loading or towing.
• When operating with cargo or towing a trailer always reduce speed, allow more room to stop and avoid hills and rough terrain.
• Be sure cargo is secured since a loose load can change vehicle handling.
• Keep weight in the cargo bed centered and as low and far forward as possible. Top-heavy loads increase the risk of rollover.

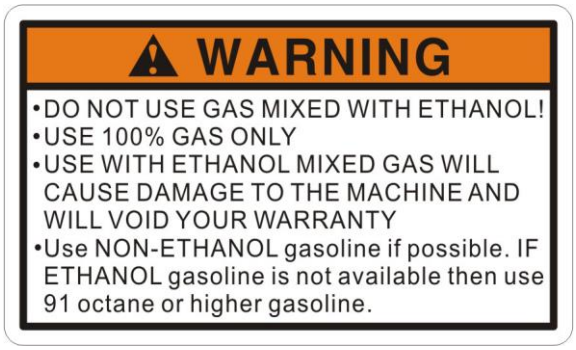
(6)

WARNING
Improper Use of Off-Highway Vehicles Can Cause Severe Injury or Death
Be Prepared
• Fasten seat belts.
• Wear an approved helmet and protective gear.
• Each rider must be able to sit with back against seat, feet flat on floor [and foot rests], and hands on steering wheel or handhold[s][,where equipped], Stay completely inside the vehicle.
Drive Responsibly
Avoid loss of control and rollovers:
• Avoid abrupt maneuvers, sideways sliding, skidding, or fishtailing, and never do donuts.
• Slow down before entering a turn.
• Avoid hard acceleration when turning, even from a stop.
• Plan for hills, rough terrain, ruts, and other changes in traction and terrain. Avoid paved surfaces.
• Avoid side hilling (riding across slopes).
Rollovers have caused severe injuries and death, even on flat, open areas.
Be Sure Riders Pay Attention and Plan Ahead
If you think or feel the vehicle may tip or roll, reduce your risk to injury:
• Keep a firm grip on the steering wheel or handholds and brace yourself.
• Do not put any part of your body outside of the vehicle for any reason.
Require Proper Use of Your Vehicle
Do your part to prevent injuries:
• Do not allow careless or reckless driving.
• Make sure operators are 16 or older with a valid driver's license.
• Do not let people drive or ride after using alcohol or drugs.
• Do not allow operation on public roads (unless designated for off-highway vehicle access)--collisions with cars and trucks can occur.
• Do nor exceed seating capacity; 1 passenger.
DRIVER UNDER 16
[Locate and] Read [Owner's Manual]
Follow All Instruction and Warnings
[Reserved for Reference to Other Soures of Safety Information]

(7)

Chongqing Huansong Science And Technology Industrial Co.,Ltd
certifies that this ROV complies with the American National Standard for Recreational Off-Highway Vehicles, ANSI/ROHVA 1 - 2011 Standard.

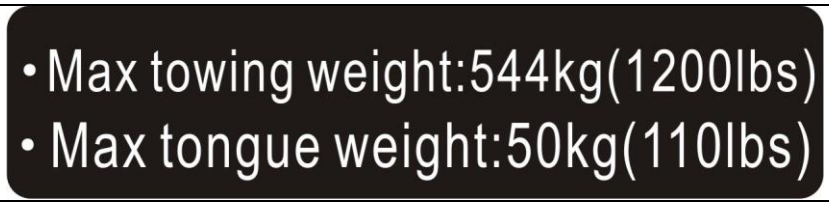
(8)


WARNING
•DO NOT USE GAS MIXED WITH ETHANOL!
•USE 100% GAS ONLY
•USE WITH ETHANOL MIXED GAS WILL CAUSE DAMAGE TO THE MACHINE AND WILL VOID YOUR WARRANTY
•Use NON-ETHANOL gasoline if possible. IF ETHANOL gasoline is not available then use 91 octane or higher gasoline.

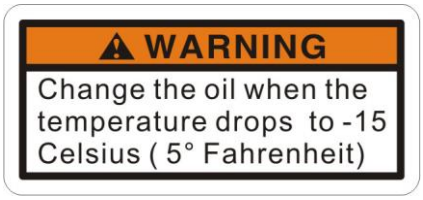
(9)

WARNING
Never carry passengers in cargo bed.

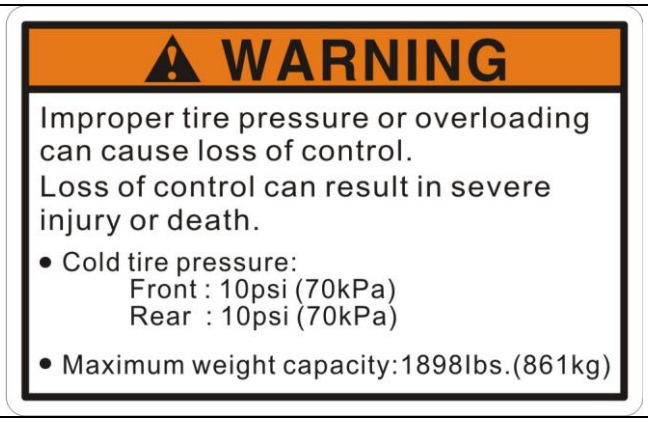
(10)


• Max towing weight:544kg(1200lbs)
• Max tongue weight:50kg(110lbs)

(11)


WARNING
Change the oil when the temperature drops to -15 Celsius (5° Fahrenheit)

(12)


WARNING
Improper tire pressure or overloading can cause loss of control.
Loss of control can result in severe injury or death.
• Cold tire pressure:
Front : 10psi (70kPa)
Rear : 10psi (70kPa)
• Maximum weight capacity:1898lbs.(861kg)

(13)

WARNING
•Keep hands and body safely away when closing bed..
•NEVER operate the vehicle with the bed up.

(14)

WARNING
Improperly loading a trailer and failure to use extra care when pulling trailer can cause an accident or injury. Never load more than 110lbs (50kg) tongue weight on the towing bracket. Do not tow more than 1200lbs (544kg) rolling weight (trailer plus cargo).Operate in low-range gears only, allow for increased braking distance, and use extreme caution when operating on inclines. Read carefully the loading information and trailer hitch sections in the owner's manual.

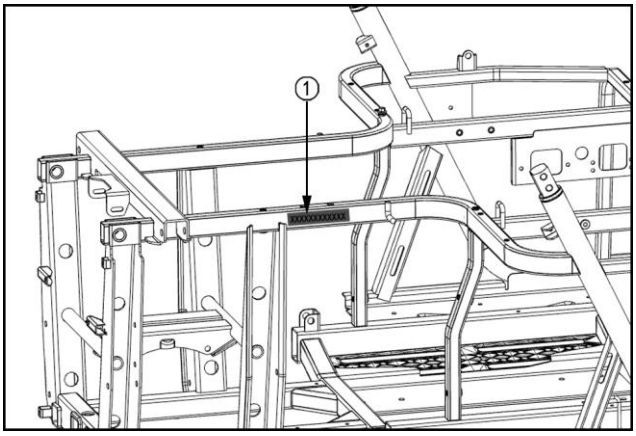
(15)

CAUTION
Select gear "L"on rough terrain and sloped terrain.

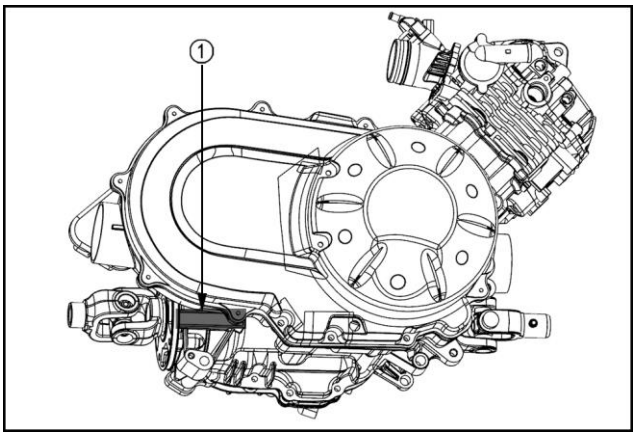
SERVICING OF VEHICLE

Your dealer is interested in your new vehicle and has the desire to help you get the most value from it. After reading this manual thoroughly, you will find you can do some of the regular maintenance by yourself. However, when in need of parts or major service, be sure to see your dealer.
For service, contact the dealership from which you purchased your vehicle or your local dealer.
When in need of parts, be prepared to give your dealer both the vehicle and engine serial numbers.
Locate the serial numbers now and record them in the space provided.

	Type	Serial No.
Vehicle		
Engine		
Product Identification Number		
Date of Purchase		
Name of Dealer		



① Vehicle serial number.



① Engine serial number

SPECIFICATIONS

SPECIFICATION TABLE

Model				
Engine	Make			
	Type			1 cylinder, 4-cycle, gasoline, SOHC, liquid cool
	Displacement		L(cu.in.)	0.8（48.8）
	Horsepower		Kw(HP)	22（29.64）
	Rated revolution		rpm	5000
	Low idling revolution		rpm	1350 to 1500
Fuel Capacity			L(U.S.gas)	28（8.9）
Transmission				CVT
Wheels, Drive system				4, Rear 2WD or 4WD
Differential lock				Electric control: switch
Gear selection				H-Lo range forward, Neutral, Reverse
Brakes	Front/Rear			Wet disk brake
	Parking brake			Axis brake, parking brake
Steering				Electronic power
Suspension	Front			Double A arm (gas+oil shock)
	Rear			Double A arm (gas+oil shock)
Dimensions	Length		mm(in.)	2980 (138.2)
	Wide		mm (in.)	1550（57.87）
	Height		mm (in.)	1950（76.77）
	Front tread centers		mm (in.)	1300 (45.866)
	Rear tread centers		mm (in.)	1285 (46.5)
	Wheelbase		mm (in.)	1950（103.54）
	Ground Clearance	front axle	mm (in.)	310（13）
		rear axle		310（13）
	Turning diameter		m (ft)	8.6（34.769）
Max. rolling weight (Towing Capacity)			kg (lbs.)	957（2110）
Payload capacity			kg (lbs.)	159（300）
Weight			kg (lbs.)	638（1407）

Model			Worksite/Red	Worksite/Camo
Cargo bed	Width	mm (in.)	1170(51.38)	
	Length	mm (in.)	900（32.88）	
	Depth	mm (in.)	280（11.4）	
	Volume	m^3 (cu.ft.)	0.29（11.35）	
	Bed height (unloaded)	mm (in.)	810（34.25）	
	Cargo bed capacity (1 row/2 row)	kg (lbs.)	159（300）	
Sound level, operator ear		db (A)	86.5	
Tire	Front		26×9-12 6PR	26×9-12 6PR
	Rear		26×11-12 6PR	26×11-12 6PR
Body color			Red	Camo

NOTE:

- The values in “Ground clearance” and “Weight” are those of the machine equipped with the tires in the table above.
- The company reserves the right to change the specifications without notice.

TRAVELING SPEEDS

Range gear shift lever	km/h (mph)
Low	13（8）
High	60（37）
Reverse	16（10）

VEHICLE LIMITATIONS

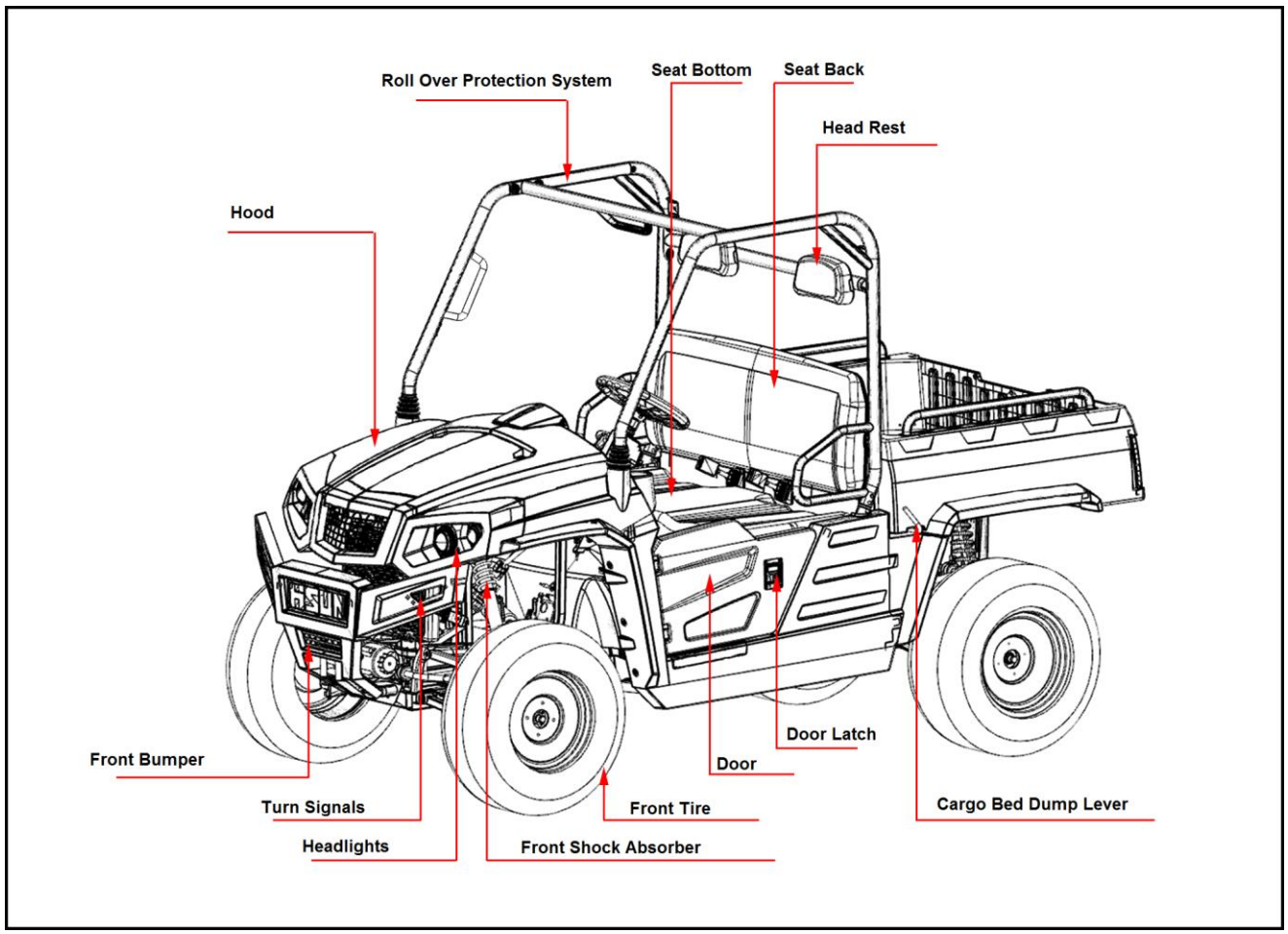
The Vehicle has been thoroughly tested for proper performance with implements sold or approved by. Use with implements which are not sold or approved and which exceed the maximum specifications listed below, or which are otherwise unfit for use, vehicle may result in malfunction or failures of the vehicle damage to other property and injury to the operator or others, [Any malfunctions or failures of the vehicle resulting from use with improper implements are not covered by the warranty]

<table>
<tr><th>Max. Cargo loading weigh</th><th>Rear trailer hitch</th></tr>
<tr><td rowspan="2">(a)1 ROW SEATING MODE
Cargo Bed Capacity=159Kg(300 lb)
Cargo Load Capacity=179kg(395 lb)</td><td>Max. rolling weight
957 kg (2110 lbs.)</td></tr>
<tr><td>Max. tongue weight
50 kg (110 lbs.)</td></tr>
</table>

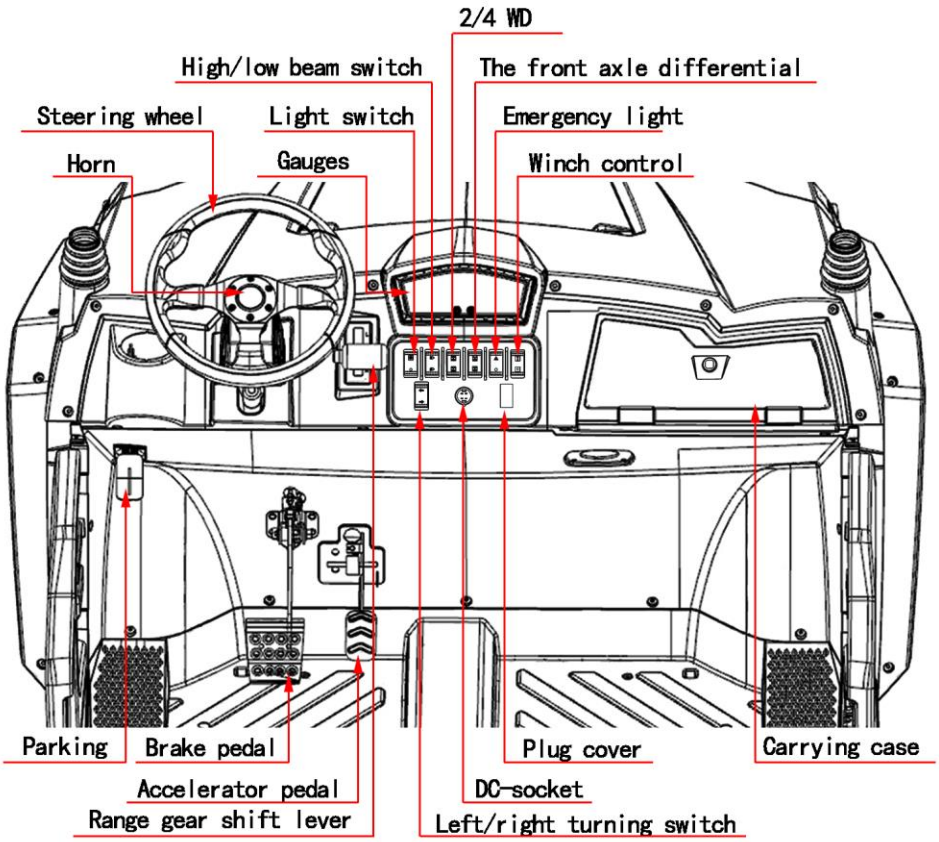
1. Above mentioned specifications are based on level ground condition.

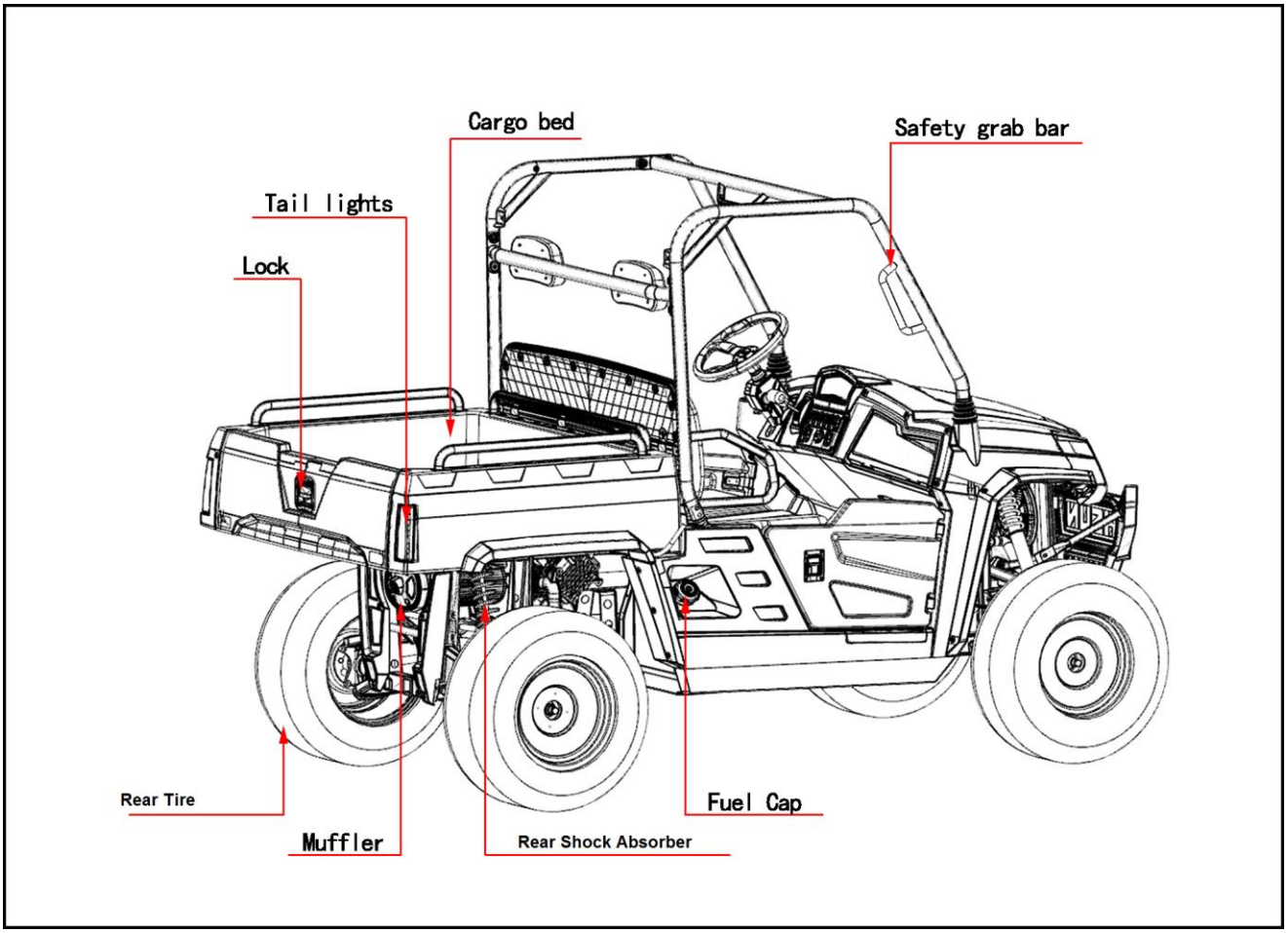
INSTRUMENT PANEL AND CONTROLS

LOCATION OF PARTS



ILLUSTRATED CONTENTS




Cargo bed
Safety grab bar
Tail lights
Lock
Rear Tire
Muffler
Rear Shock Absorber
Fuel Cap

PRE-OPERATION CHECK

DAILY CHECK

To better prevent troubles, it is important to know condition of the vehicle well. Check it before starting.

CAUTION：

To avoid personal injury：

Be sure to check and service the vehicle on a level surface with the engine shut off and the parking brake “ON” and implement lowered to the ground if equipped.

Check items

- Visually inspect the exterior of the vehicle
-Check engine oil level
-Check transmission oil level
-Check brake fluid level
-Check coolant level
-Clean radiator screen
(When used in a dusty place)
-Check brake and pedal
-Check parking brake
-Check indicators, gauges and meters
-Check lights
-Check seat belts and roll-over protective structures.
-Check front and rear joint boots.
-Check tire inflation pressure.
-Refuel
(See "DAILY CHECK" in "PERIODIC SERVICE" section.)
-Care of danger, warning and caution labels
(See "DANGER, WARNING AND CAUTION LABELS " in " SAFE OPERATION " section.)

OPERATING THE ENGINE

⚠ CAUTION：

To avoid personal injury：

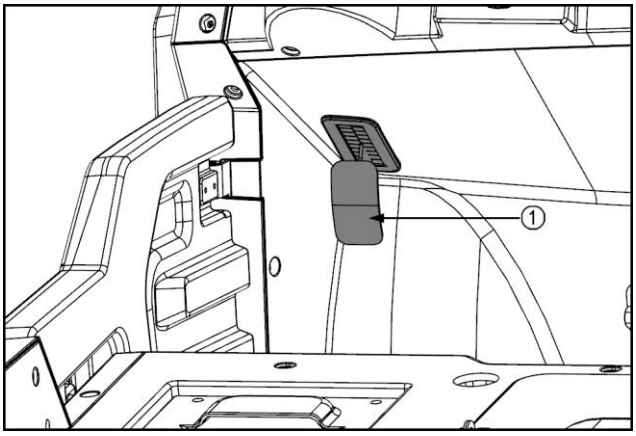
- **Read "SAFE OPERATION" in front of this manual.**
- **Read the danger, warning and caution labels located on the vehicle.**
- **To avoid the danger of exhaust fume poisoning, do not operate the engine in closed buildings without proper ventilation.**
- **Start engine only from operator's seat. Never start engine while standing on ground.**
- **Make it a rule to set gear shift lever to "NEUTRAL" position before starting the engine.**

IMPORTANT:

- Do not use starting fluid or ether.
- To protect the battery and the starter, make sure that the starter is not continuously turned for more than 10 seconds.

STARTING THE ENGINE

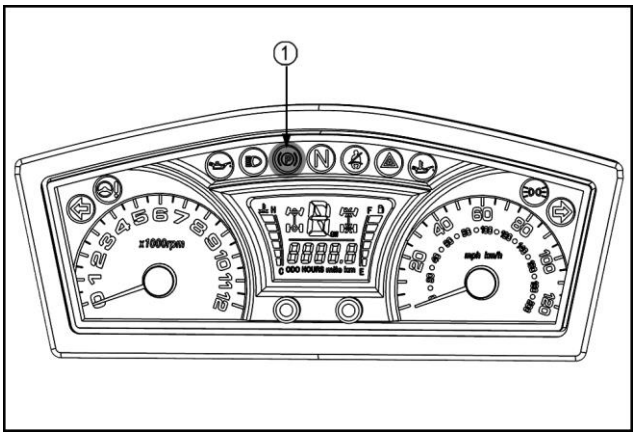
1. Make sure the parking brake is set.



① Parking brake

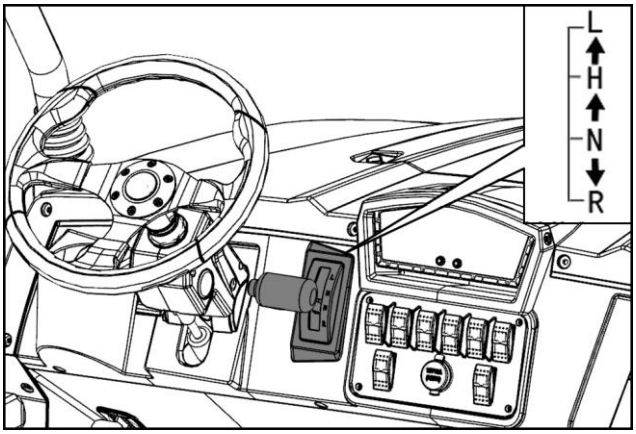
NOTE：

The parking brake warning lamp (P) comes on while parking brake is applied and goes off when it is released.



① Parking brake warning lamp

2. Set gear shift lever to the "NEUTRAL" position.



① Range gear shift lever.

(L) Low Range

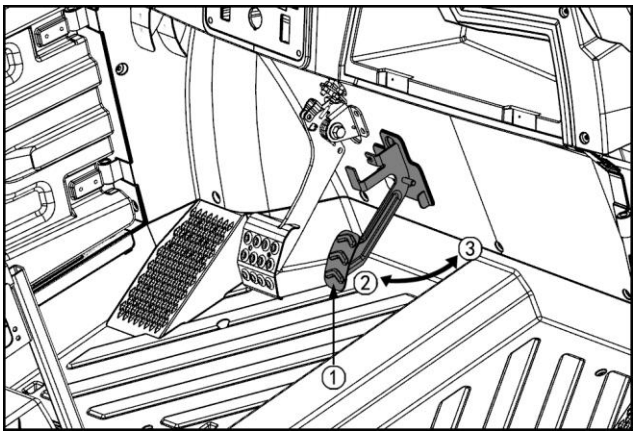
(H) High Range

(L) Low Range

(N) "Neutral" position

(R) "REVERSE"

3. Push the speed control pedal down about 1/2 way.

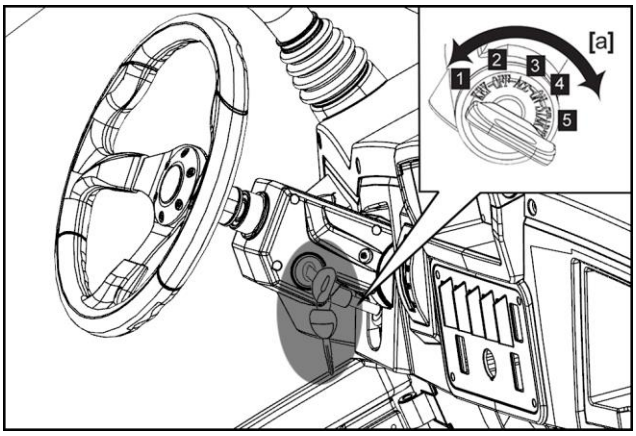


① Accelerator pedal

②＝＞③ INCREASE

③＝＞② DECREASE

4. Push the accelerator pedal down about 1/2 way.



1. Insert the key into the key switch and turn it "START".

OFF (Engines stop)

ON (Engine run or headlight on)

START (Engine start)

IMPORTANT :

Relying on the engine warning lights is never enough. Never fail to conduct daily checks carefully by referring to Pre Operation Check " in "PERIODIC SERVICE" section.

5. Turn the key to "START" position and release when the engine starts.

IMPORTANT:

- Because of safety devices, the engine will not start except when the gear shift lever is placed in the "NEUTRAL" position.

■ Cold Starting

When the ambient temperature is below -15℃(5℉), the engine is very cold. If the engine fails to start after 10 seconds, turn off the key for 30 seconds and start again.

STOPPING THE ENGINE

1. After slowing the engine to idle, turn the key to "OFF".
2. Remove the key.

WARMING UP

⚠ CAUTION:

To avoid personal injury:

- **Be sure to set the parking brake during warm-up.**
- **Be sure to set the shift lever to the "NEUTRAL" position during warm-up.**
- Allow the engine to warm up for 5 minutes without applying any load. This is to allow oil to reach every engine part. If a load is applied to the engine without warm-up engine damage may occur.

■ Warm-Up Transmission Oil in the Low Temperature Range

IMPORTANT:

- Do not operate the vehicle under full load until it is sufficiently warmed up.

OPERATING THE VEHICLE

OPERATING NEW VEHICLE

How a new vehicle is handled and maintained determines the life of vehicle.

A new vehicle just off the factory production line has been tested, however the various parts are not mated to each other, so the operator should pay more attention to the vehicle operation for the first 50 hours. Drive at a slower speed and avoid excessive work or operation until the various parts become “broken-in”. How you break in the vehicle greatly affects the life of your vehicle. Therefore, to obtain the maximum performance and the longest life of the vehicle, it is very important to properly break-in your vehicle. For better handling of a new vehicle, the following precautions should be observed.

■ **Do not operate the vehicle at full speed for the first 50 hours.**

- Do not start quickly nor apply the brakes suddenly.
- In winter, operate the vehicle after fully warming up the engine.
- Do not run the engine at speeds faster than prescribed.
- On rough roads, slow down to suitable speeds. Do not operate the vehicle at fast speed. The above precautions are not limited to new vehicles, but to all vehicles. It should be especially observed for new vehicles.

■ **Changing Lubricating Oil for New Vehicles**

The lubricating oil is especially important for a new vehicle. Various parts are not “broken-in” and are not accustomed to each other. Small pieces of metal grit may develop during the operation of the vehicle; and this may wear out or damage the parts. Therefore, take care to change the lubricating oil a little earlier than would ordinarily be required. For further details of change interval hours, see “MAINTENANCE” section.

STARTING

1. Fasten the seat belt.

■ **Seat Belt**

⚠WARNING

To avoid personal injury:

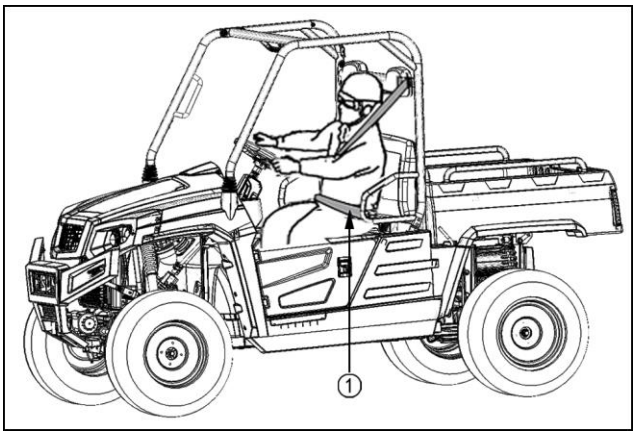
- **Seat belts reduce injury. Always wear your seat belts. The lap-style seat belts may not provide adequate protection for small children. Pay special attention when carrying a child passenger.**

⚠ CAUTION：

To avoid personal injury:

- **Always use the seat belts when operating and riding the vehicle.**

Adjust the seat belts for proper fit and connect the buckle. This seat belt is an auto-locking retractable type.



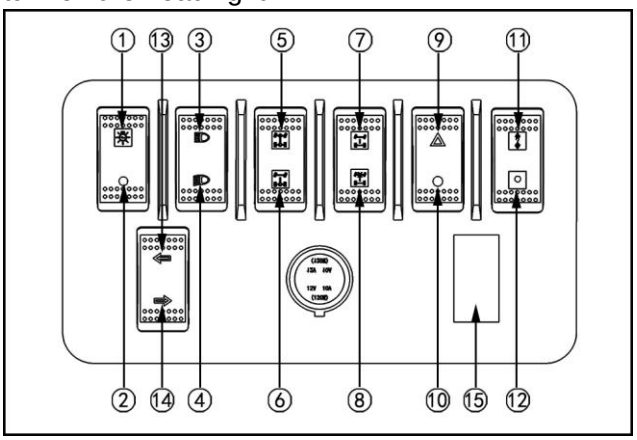
① Seat belt

2. Selecting light switch position.

■ Head Light Switch

Turn on the key switch and turn the head light switch to the “ON” position.

Turn the head light switch to the “OFF” position to turn off the head light.



① Head light switch
② Head lights “OFF”
③ High beam lights "ON"
④ Low beam lights "ON"
⑤ 4WD button
⑥ 2WD button
⑦ Front axle differential lock
⑧ Front axle differential unlock
⑨ Emergency light "ON"
⑩ Emergency light "OFF"
⑪ Winch cable release
⑫ Winch cable pulled up
⑬ Left turning lights
⑭ Right turning lights
⑮ Plug cover

NOTE：

Turning the head light switch to the “ON” position causes the following lamps to light simultaneously.

1. Tail lights (lamps at the rear portions of the vehicle)
2. Lamp built in the coolant temperature gauge
3. Lamp built in the fuel gauge
4. Lamp built in the speedometer
5. Front left and right position lights

■ Hazard Light Switch

[if equipped]

Press the top half of the hazard light switch, the hazard light flash along with the indicator on the instrument panel. Press the bottom half of the hazard light switch to turn off the hazard light.

Note:

- The hazard light switch is operative when the key switch is in the “ON” or “OFF” position.
  Be careful that keeping the switch “ON” causes the battery to run out.

■ Turn Signal Light Switch

[if equipped]

To indicate a right turn, push on the lower half of the turn toggle switch.

To indicate a left turn, push on the upper half of the turn toggle switch.

When the left or right signal is activated, the indicated turning light will flash and the other will stay on.

The indicator lamp at the instrument panel also flashes indicating the direction of the turn.

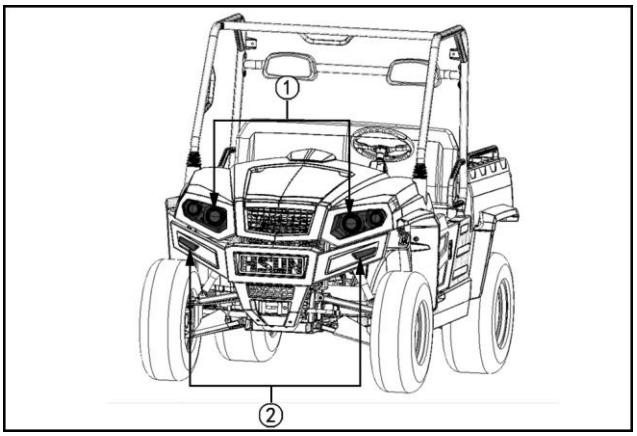
NOTE:

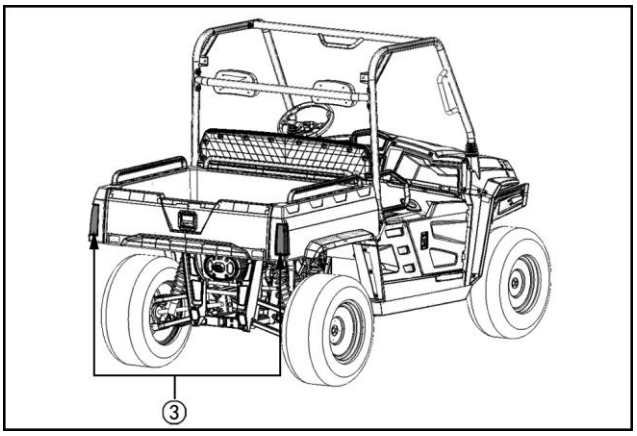
- The turn signal light switch only operates

when the key switch is in the “ON” position.

If the hazard light switch is pressed to the “ON” position while the turn signal is activated, the indicated turning light will flash and other will stay on.

- Be sure to return switch to center position after turning.





① Head light ② Front turn signal lamp;
③ Rear turn signal lamp

3. Checking the brake pedal.

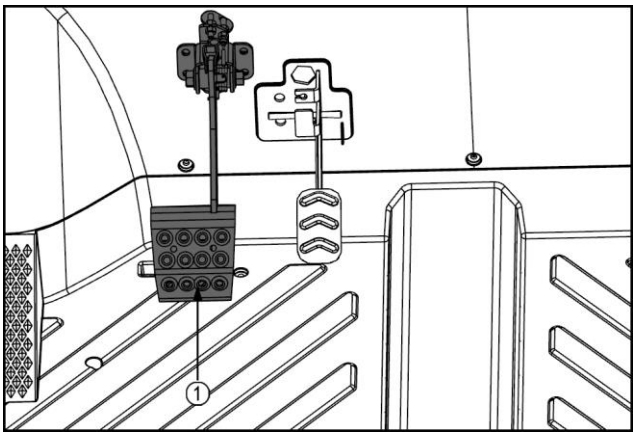
■ Brake Pedal

⚠CAUTION:

To avoid personal injury:

- **If the operator suddenly brakes, an accident may occur due to loss of control or shifting forward of heavy loads.**
- **When driving on icy, wet or loose surface, make sure the vehicle is correctly loaded to avoid skidding or loss of steering control. Reduce the speed.**

The brake pedal is the left pedal on the foot board. Depress the pedal to slow or stop the vehicle.



① Brake pedal

4. Selecting the travel speed.

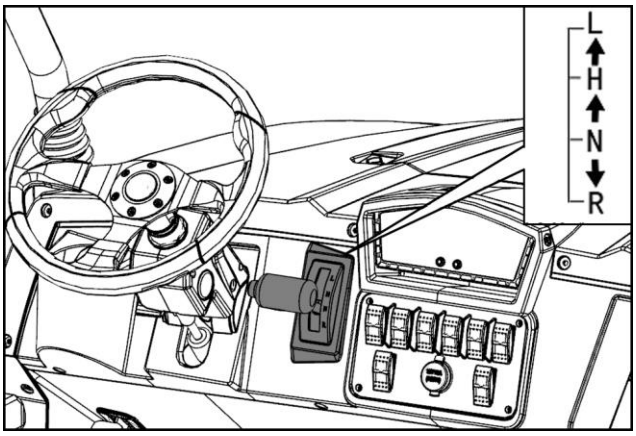
■ Gear Shift Lever

⚠CAUTION:

To avoid personal injury:

- **Avoid changing range gear shift lever when ascending or descending a slope.**
- **Before ascending or descending a slope, shift to the “L” range to control the vehicle speed.**
- **Operate in reverse at slow speeds to maintain control.**

1. The gear shift lever can only be shifted when the vehicle is completely stopped and the brake pedal is pressed.
2. To avoid transmission and shift linkage damage, completely stop the vehicle using the brake pedal before shifting gears.
3. Select proper gear and engine speed depending on the type of job.



① Range gear shift lever
(L) LOW Range
(H) HIGH Range
(N) NEUTRAL" POSITION
(R) "REVEREE"

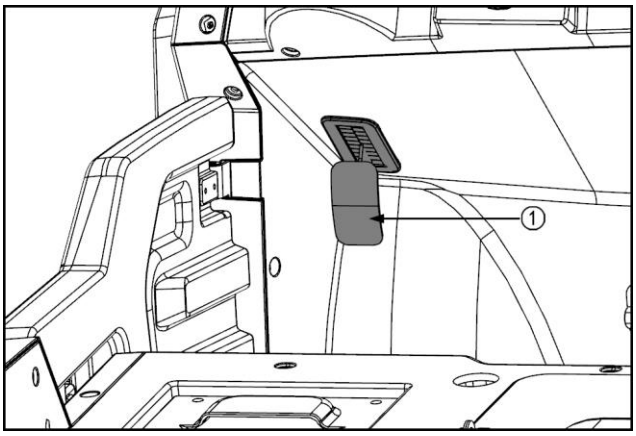
NOTE:

- When gear shift lever is hard to engage, do not force the lever. Set the parking brake, slightly depress the accelerator pedal and release it to neutral position, then shift the lever.
- When the lever is hard to disengage, do not force the lever.
- Depress the brake pedal fully, then shift the lever.
- **An accident may occur if the brakes are applied suddenly while towing heavy loads. The load can shift forward causing loss of control.**
- **The braking characteristics are different between two and four wheel drive. Be aware of the differences and practice the differences at slower speeds first.**

IMPORTANT:

5. Release the parking brake and start slowly.

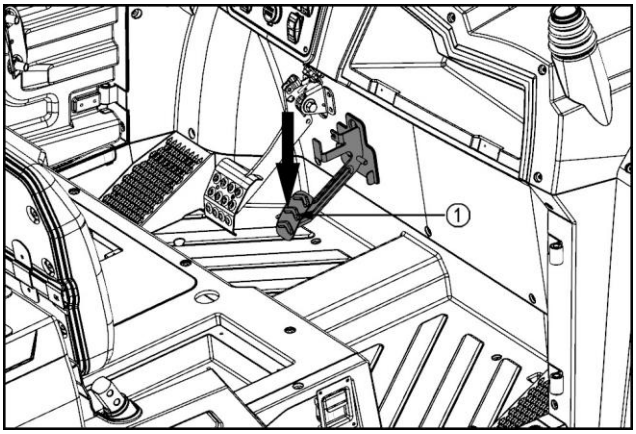
To release the parking brake, depress the brake pedal. Make sure that indicator in the Instrument Panel goes off.



① Parking brake

■ **Accelerator Pedal**

The Accelerator pedal is used to increase the engine and vehicle speed. Push down on it for higher speed.



① Accelerator pedal

STOPPING

■ **STOPPING**

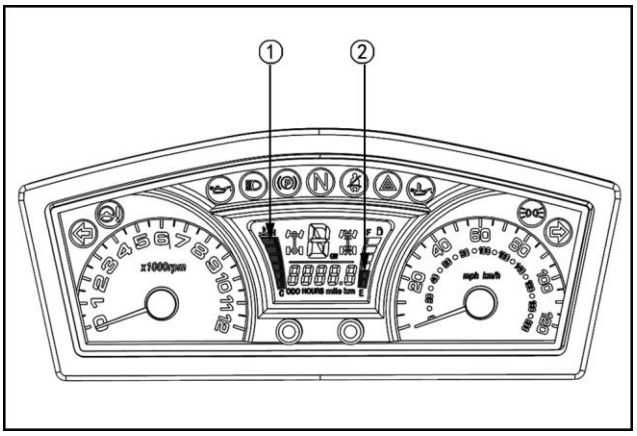
1. Release the Accelerator pedal
2. Step on the brake pedal.

CHECK DURING DRIVING

■ **Immediately Stop the Engine if:**

- The engine suddenly slows down or accelerates.
- Unusual noises are suddenly heard.
- Exhaust fumes suddenly become very white.

While driving, check the following items to see if all parts are functioning normally.



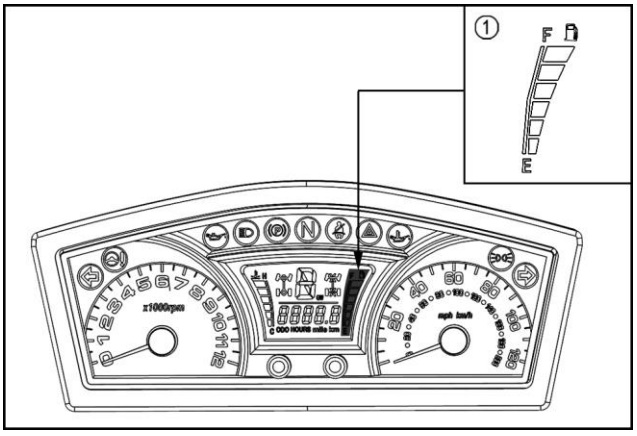
① Coolant temperature gauge
② Fuel gauge

■ **Fuel Gauge**

Park the vehicle on a flat place.

When the key switch is “START”, the fuel gauge indicates the fuel level.

Be careful not to empty the fuel tank. Otherwise air may enter the fuel system.



① Fuel gauge

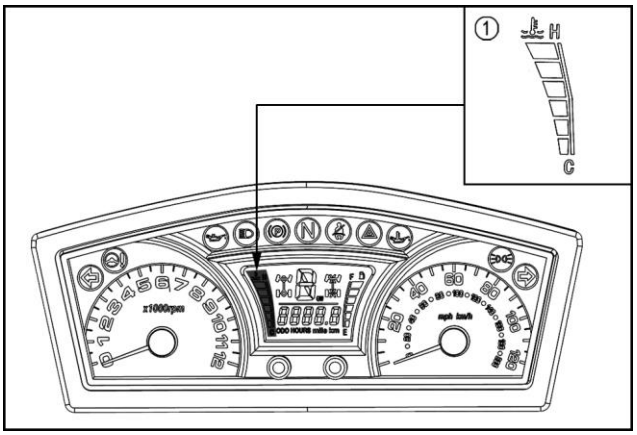
■ **Coolant Temperature Gauge**

⚠CAUTION:

To avoid personal injury:

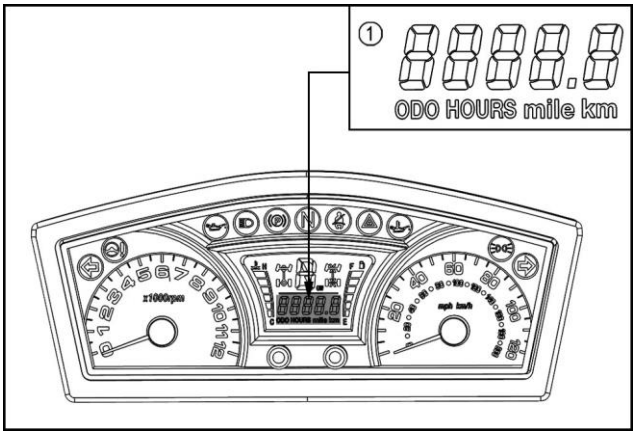
- **Do not remove radiator cap until coolant temperature is well below its boiling point. Then loosen cap slightly to relieve pressure before removing cap completely.**

1. With the key switch “ON” the temperature gauge indicates the temperature of the coolant. White Zone for “cold” and Red zone for “hot”.
2. If the indicator reaches the Red zone, engine coolant is overheated. Check the vehicle by referring to “TROUBLESHOOTING” section.



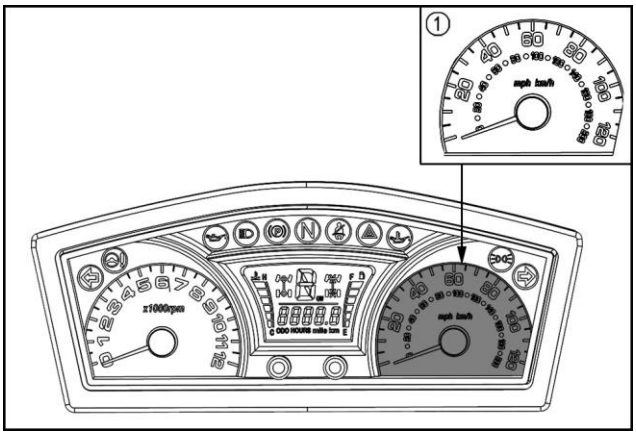
① Coolant temperature gauge

The hour meter indicates in five digits the hours the vehicle has been used; the last digit indicates 1/10 of an hour.



① Hour meter

The speedometer indicates the traveling speed.

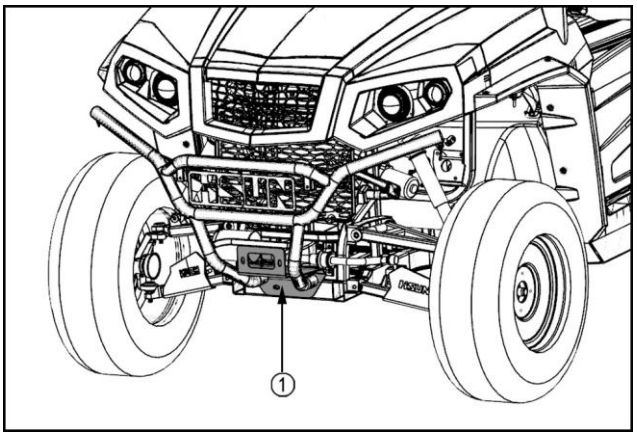


① Speedometer

WINCH MOUNT PLATE

WINCH MOUNT PLATE

Always read and follow the instructions in the winch owner's manual before attempting to install or use a winch.



① Winch mount plate

■ Transporting Vehicle

Pay attention to the following points when transporting the vehicle.

1. Use a suitable truck or trailer.

Apply the parking brake and place chocks against the front and rear tires.

2. Tie the vehicle to the sides of the trailer or truck using suitable tie-downs.

MAINTENANCE AND ADJUSTMENT

⚠ CAUTION:

To avoid personal injury and vehicle damage:

- **Be sure you have sufficient knowledge, experience, the proper replacement parts and tools before you attempt any vehicle maintenance task.**
- **If you don't have the knowledge and equipment which are necessary to perform the maintenance task, consult your local dealer.**
- **Have your local dealer perform inspection items which are marked *4 in the chart below.**

SERVICE INTERVALS

IMPORTANT:

- The jobs indicated by ◎ must be done after the first 50 hours of operation.

*1 Air cleaner should be cleaned more often in dusty conditions than in normal conditions.

*2 Every year or every 6 times of cleaning.

*3 Replace only if necessary.

*4 Consult your local dealer for this service.

*5 When the battery is used for less than 100 hours per year, check the battery condition by reading the indicator annually.

- The items listed below (@marked) are registered as emission related critical parts by DEALER in the U.S.EPA non road emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the below instruction. Please see Warranty Statement in detail.

No.	Items		Indication of														After 700 hrs
			50	100	150	200	250	300	350	400	450	500	550	600	650	700	
1	Engine oil	Change	◎			○				○				○			Every 200 hrs
2	Engine oil filter	Replace	◎			○				○				○			Every 200 hrs
3	Transmission fluid	Change								○							Every 400 hrs
4	Engine start system	Check	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Every 50 hrs
5	Greasing	Apply	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Every 50 hrs
6	Muffler	Clean	◎	○		○		○		○		○		○		○	Every 100 hrs

7	Spark arrester	Clean		○		○		○		○		○		○		○	Every 100 hrs
8	Wheel bolt torque	Check	◎	○		○		○		○		○		○		○	Every 100 hrs
9	Battery condition	Check		○		○		○		○		○		○		○	Every 100 hrs
10	Ton-in	Adjust		○		○		○		○		○		○		○	Every 100 hrs

No.	Items		Indication of														After 700 hrs
			50	100	150	200	250	300	350	400	450	500	550	600	650	700	
11	Fuel filter element	Check		○		○		○		○		○		○		○	Every 100 hrs
		Replace										○					Every 100 hrs
12	Fuel line	Check		○		○		○		○		○		○		○	Every 500 hrs
		Replace															Every 100 hrs
13	Air cleaner element	Clean		○		○		○		○		○		○		○	Every 1 years
		Replace															Every 100 hrs
14	Brake pedal	Check	◎			○				○				○			Every 1 years
15	Parking brake	Adjust	◎			○				○				○			Every 200 hrs
16	Brake light switch	Check	◎			○				○				○			Every 200 hrs
17	Radiator hose and clamp	Check				○				○				○			Every 200 hrs
		Replace															Every 2 years
18	Intake air line	Check				○				○				○			Every 200 hrs
		Replace															Every 1 years
19	Brake hose & pipe	Check	◎			○				○				○			Every 200 hrs
		Check															Every 4years
20	Tire wear	Check	◎					○						○			Every 300 hrs
21	Front axle case oil	Change								○							Every 400 hrs

22	Knuckle case oil	Change								○							Every 400 hrs
23	Engine valve clearance	Adjust															Every 800 hrs
24	Fuel injection	Check															Every 1500 hrs
25	Injection	Check															Every 3900 hrs
26	Brake fluid	Change															Every 2 years
27	Remote hydraulic hose	Replace															Every 2 years
28	Rear brake cylinder seal	Replace															Every 2 years
29	Front brake seal	Replace															Every 2 years
30	Cooling system	Flush															Every 2 years
31	Coolant	Change															Every 2 years
32	Fuel system	Bleed															Service as required
33	Fuse	Replace															
34	Light bulb	Replace															

NOTE:

◆Engine Oil:（15W/40SL）

Oil used in the engine should have an American Petroleum Institute (API) service classification and Proper SAE Engine Oil according to the ambient temperatures as shown above.

◆Brake fluid:

Always use DOT3 GENUINE BRAKE FLUID from a sealed container.

PERIODIC SERVICE

⚠ CAUTION:

To avoid personal injury:

How TO OPEN THE FRONT HOOD COVER AND SEAT

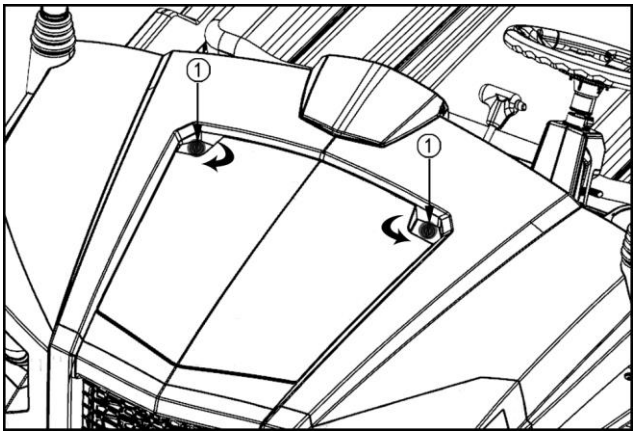
⚠ CAUTION

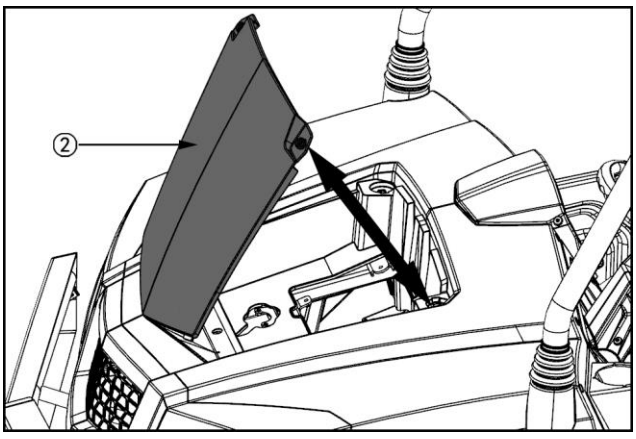
To avoid personal injury from contact with moving parts:

- **Never open operator's seat while the engine is running.**

■ Front hood cover

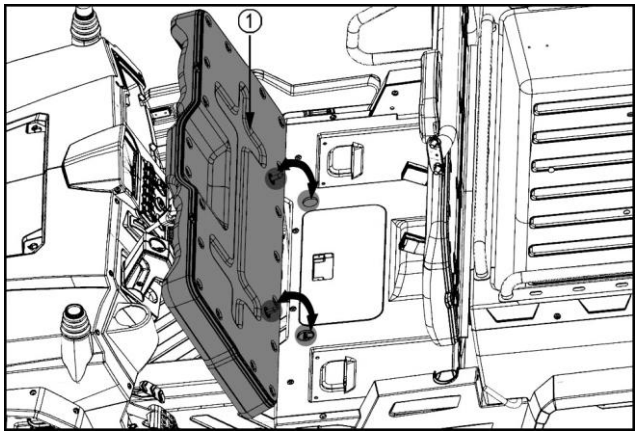
To open the hood, turn the latch in the direction shown in the picture below and lift the hood off. To close, tilt cover back to closed position and fasten the latches.





■ Operator's Seat

To open the seat, raise the seat to the forward position.



① Operator's seat

HOW TO RAISE THE CARGO BED

⚠ CAUTION

To avoid personal injury:

- **When servicing under raised cargo bed, make sure safety support is properly mounted.**
- **Do not touch muffler or exhaust pipes while they are hot; Otherwise, severe burns could result.**

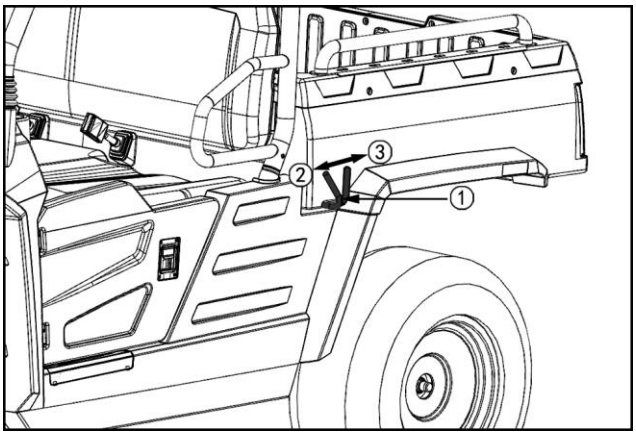
■ Raising and Lowering the Cargo Bed

◆To raise the cargo bed

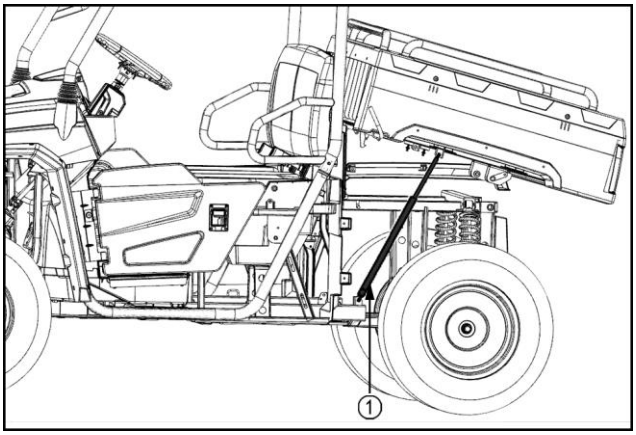
1. Apply the parking brake with the engine off.
2. Pull up the cargo bed release lever.
3. When the cargo bed has been raised, mount the safety support.

◆To lower the cargo bed

Press down the cargo bed hard untill it is locked.



① Cargo bed release Lever
② UP
③ DOWN



① Gas spring

JACK-UP POINT

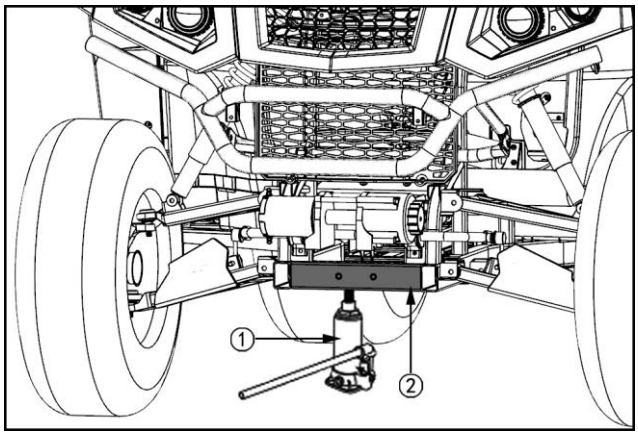
WARNING

To avoid personal injury, death or vehicle damage:

- **Do not work under the vehicle unless it is secured by safe stands or suitable blocking.**

■ **Front End**

Jack up at the front frame tube only.

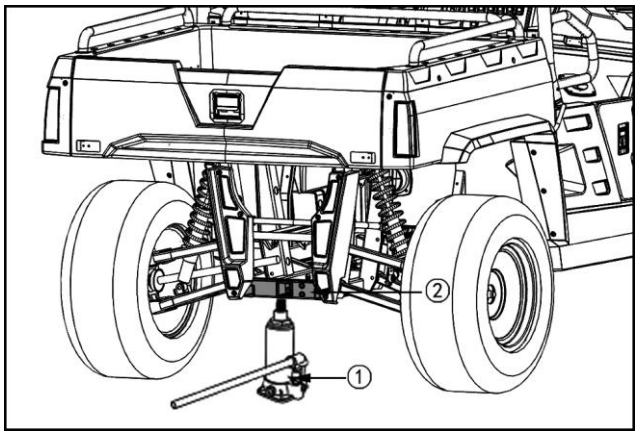


① Jack ② Front frame tube

■ **Rear End**

Jack up the rear side after placing a wooden block under the right and left pipe frames for securing the engine and then supporting it.

Do not jack it up supporting the steel plate portion under the engine directly.



① Jack ② Rear frame tube

DAILY CHECK

For your own safety and maximum service life of the vehicle, make a thorough daily inspection before operating the vehicle.

CAUTION

To avoid personal injury:

- **Be sure to park the vehicle on a flat surface with the engine off and the parking brake "ON".**

■ **Visual Inspection**

Look around and under the vehicle for such items as loose bolts, trash build-up, oil or coolant leaks, broken or worn parts.

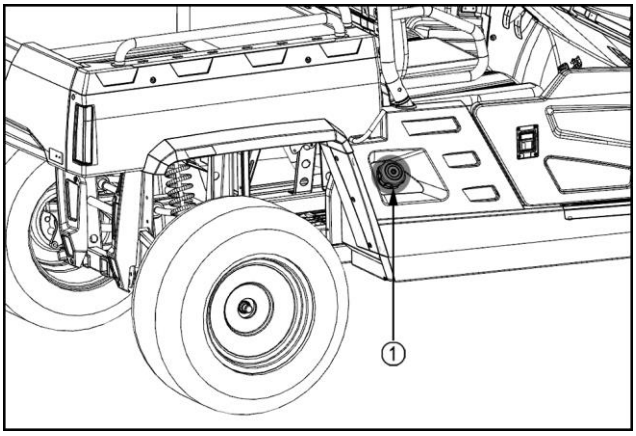
■ **Checking and Refueling**

⚠ CAUTION

To avoid personal injury:

- **Do not smoke while refueling.**
- **Be sure to stop the engine before refueling.**

1. Turn the key switch to “ON”, check the amount of fuel by fuel gauge
2. Fill fuel tank when fuel gauge shows1/4 or less fuel in tank.



① Fuel tank cap

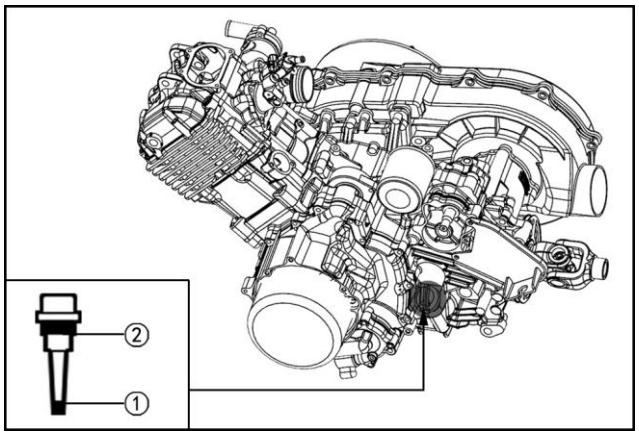
Fuel tank capacity	28L

IMPORTANT

If oil level is low, do not run engine.

Checking engine oil level

1. Park the vehicle on a flat surface with engine off, raise the cargo bed, mount the safety support.
2. To check the oil level, draw out the dipstick, wipe it clean, replace it, and draw it out again, check to see if the level id too low, add new oil to the prescribed level at the oil inlet.



① Oil Level

② Dipstick

IMPOTTANT

If oil level is low, do not run engine

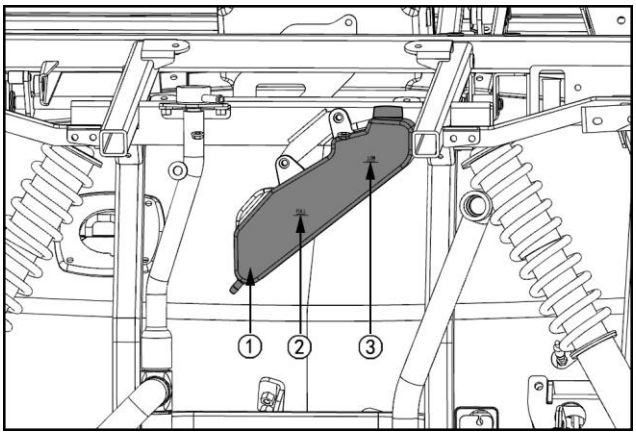
■ **Checking Coolant Level**

⚠ CAUTION

TO avoid personal injury

- **Do not remove radiator cap while coolant is hot .when cool .slowly rotate to the first stop and allow sufficient time for excess pressure to escape removing the cap completely.**

1. Park the vehicle on a flat surface with engine off, raise the cargo bed, mount the safety support.
2. Check to see that the coolant level is between the “FULL” and” LOW” marks of recovery tank.
3. When the coolant level drops due to evaporation, add water only up to the full level. In case of leakage add anti-freeze and water in the specified mixing ratio up to the full level.(see flush cooling system and changing coolant in EVERY 2 YEARS in PERIODIC SERVICE section)



① Recovery tank
② FULL
③ LOW

IMPORTANT

- If the radiator cap has to be removed, follow the cautions above and securely retighten the cap.
- Use clean fresh water and anti-freeze to fill the recovery tank.
- If water should leak, consult your local HSUN Dealer.

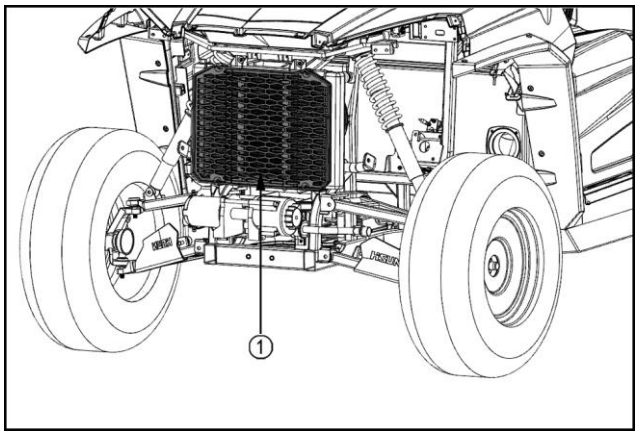
■ Cleaning radiator screen

CAUTION

TO avoid personal injury:

- **Be sure to stop the engine before removing the screen**

1. Park the vehicle on a flat surface,
2. Remove the radiator cover,
3. Detach the screen and remove all foreign materials,



① Radiator screen

IMPORTANT

- Radiator screen must be clean from debris to prevent engine from overheating

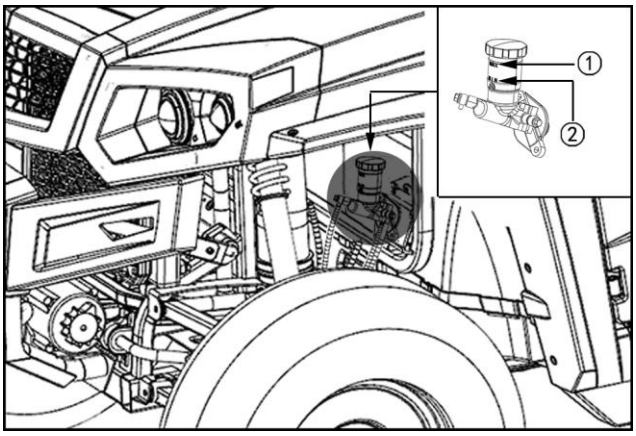
■ Checking brake fluid level

CAUTION

TO avoid personal injury:

- **Never operate the vehicle if the brake fluid is below the minimum mark.**
- **Use only DOT3 from a sealed container. Other types of Brake fluid may ruin synthetic resin or rubber installed in brake system components and may cause brake failure.**
- **Avoid contamination of the brake fluid thoroughly clean before removing the filler cap. Do not open the brake fluid reservoir cap unless absolutely necessary.**
- **Use extreme care when filling the reservoir. If brake fluid spills on power steering hose, wash off with water immediately, as brake fluid quickly ruins synthetic resin or rubber hoses.**

1. Check to see that the brake fluid level is the LOWER mark.
2. If it is below the “LOWER” mark add brake fluid .



① OIL CUP ② LOWER

■ **Checking brake pedal**

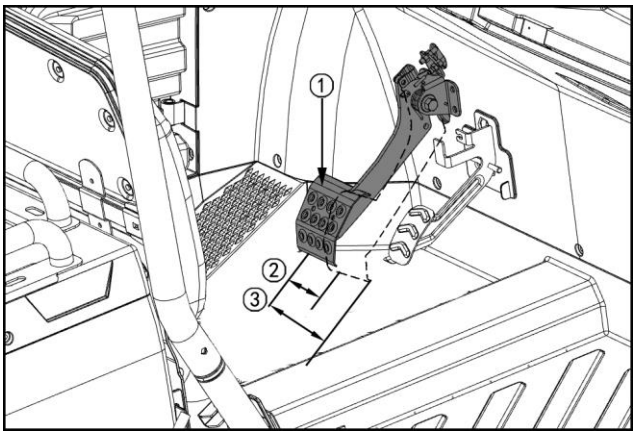
⚠ CAUTION

TO avoid personal injury:

- **Stop the engine and chock the wheels before checking brake pedal.**

1.Inspect the brake pedals for free clearance and smooth operation.

Adjust if incorrect measurement is found. (see checking brake pedal in" EVERY 200 HOURS in PERIODIC SERVICE section)



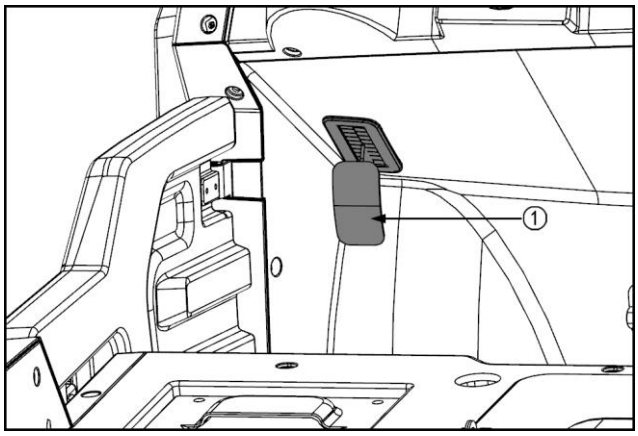
① Brake pedal ② FREE TRAVEL

③ PEDAL STROKE

■ **Checking parking brake**

Use the parking brake to stop, depress the brake pedal to release the park.

Make sure the parking brake warning lamp on the easy Display goes off when parking brake lever is down.



① Parking brake

■ **Checking gauges ,meter and Display lamps**

1. Inspect the instrument panel for broken gauges, meter and Display lamps.
2. Replace if broken.

■ **Checking head light turn signal light etc**

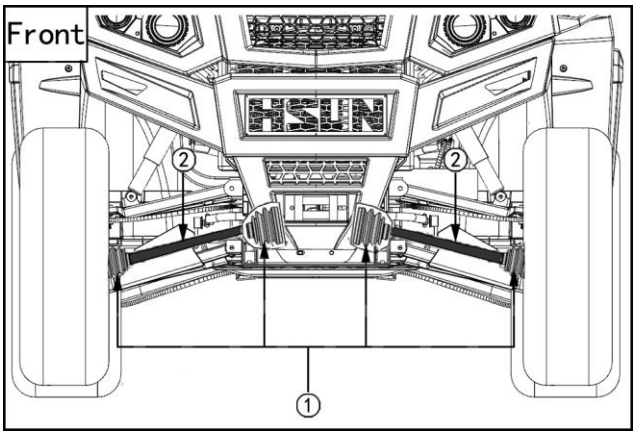
1. Inspect lights for broken bulbs and lenses
2. Replace if broken

■ **Checking seat belt and ROPS**

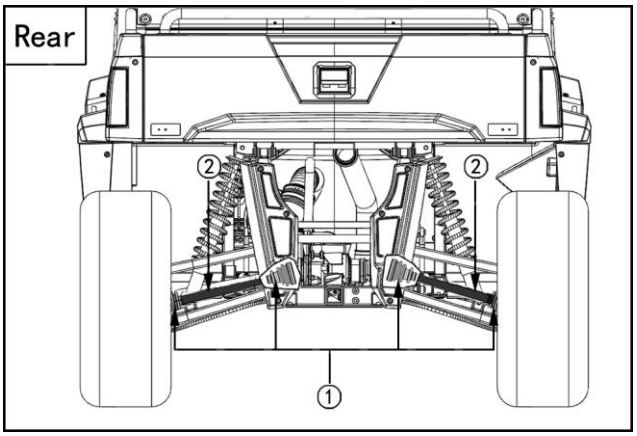
1. Always check condition of seat belt and ROPS attaching hardware before operating vehicle.
2. Replace if damaged.

■ **Checking CV joint boot**

1. Check to see if the joint boots are damaged.
2. If the boots are cut gashed or show signs of deterioration. consult your local dealer.



① joint boot ② Drive shaft



① Joint boot ② Drive shaft

■ **Checking tire inflation pressure**

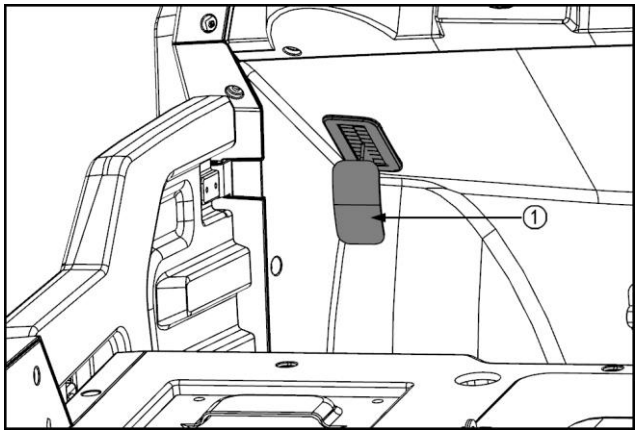
Though the tire pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time, check it everyday and inflate as necessary.

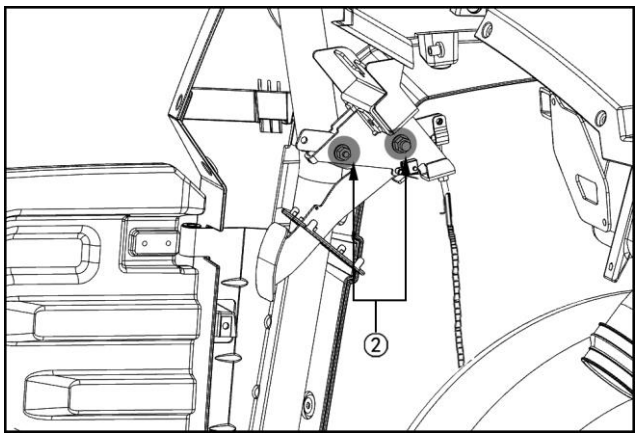
tire sizes	inflation pressure
Front: 26x9-12	70kPa (0.7kgf/cm2, 10psi)
Rear: 26x11-12	70kPa (0.7kgf/cm2, 10psi)

EVERY 50 HOURS

■ **Greasing**

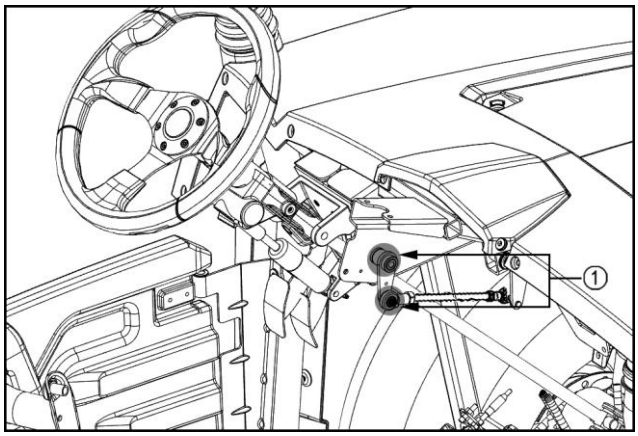
Apply a small amount of multi-purpose grease to the following points every 50 hours. If you operated the vehicle in extremely wet and muddy conditions lubricate grease fittings more often.

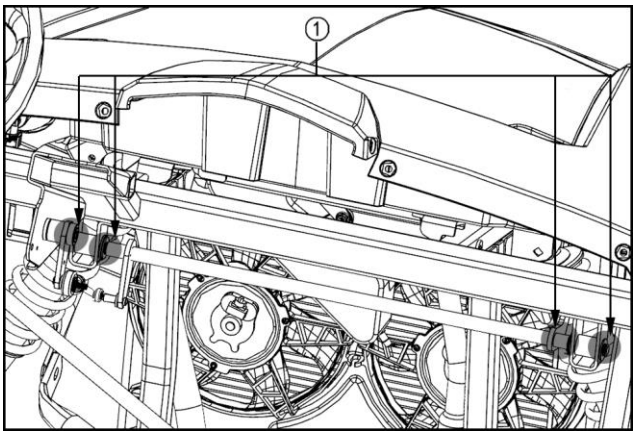




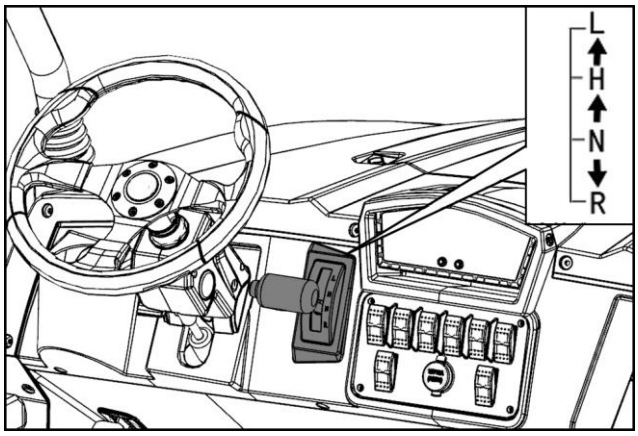
① Parking brake

② Parking brake pivot（spray type grease）





① Range gear shift lever pivot (spray type grease)



① Range gear shift lever

■ **Checking engine start system**

⚠ CAUTION

TO avoid personal injury

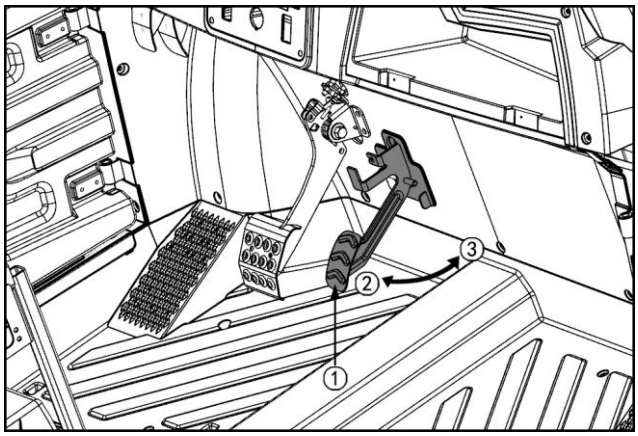
- **Do not allow anyone near the vehicle while testing.**
- **If the vehicle does not pass the test, do not operate the vehicle.**

◆ **Preparation before testing**

1. Place all control levers in the “NEUTRAL” position.
2. Set the parking brake and stop the engine.

◆ **Test range gear shift lever safety switch**

1. Sit on the operators seat.
2. Shift the range gear shift lever to: “L”, “H”, “N” or REVERSE position.
3. Turn the key to “START” position.
4. The engine must not crank.
5. If it cranks consult your local dealer for this service.



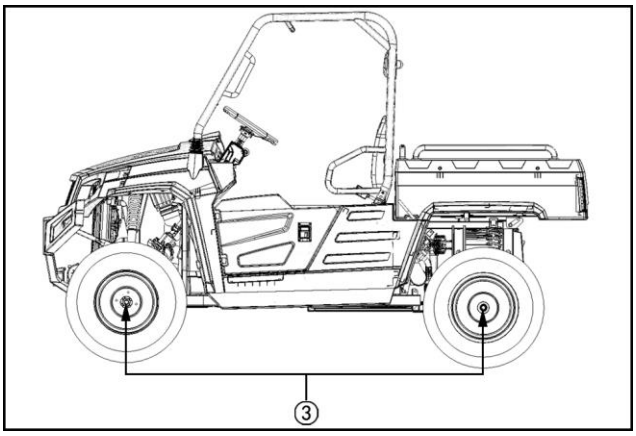
① Accelerator pedal

■ **Checking wheel Lug Nut torque**

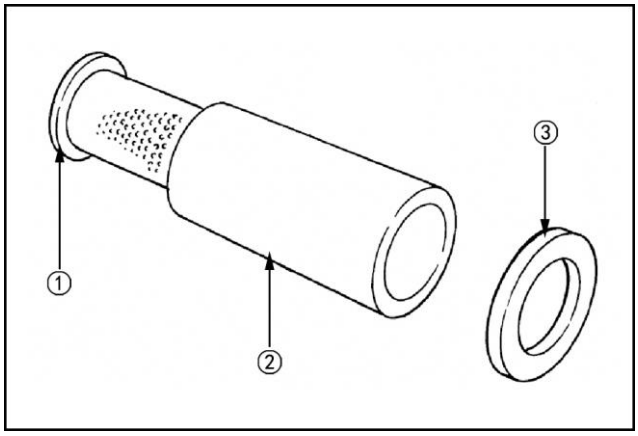
⚠ CAUTION

To aroid personal injury

- **Never operate vehicle with a loose Lug Nuts.**
- **Any time Lug Nuts are loosened they should be retightened to the specified torque.**
- **Check all Lug Nuts frequently and keep them tight.**



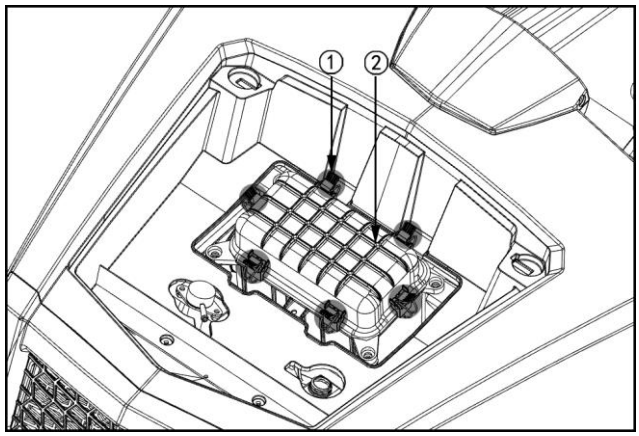
① Torque wheel bolts to 75to 90 N.m



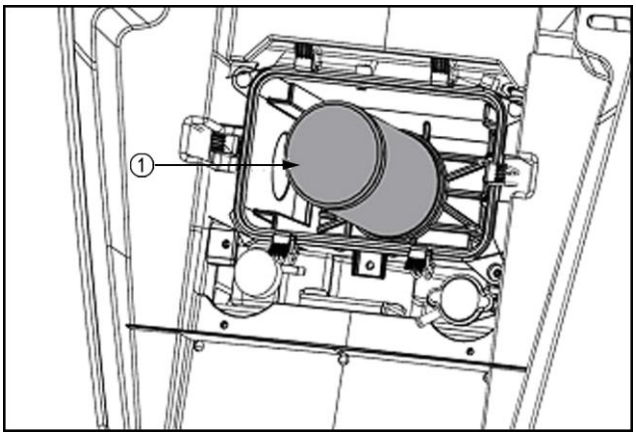
① Air filter frame ② Air filter element
③ Element retaining plate

■ Cleaning air cleaner primary element

1. Open the hood cover.
2. Open the air cleaner case cover.
3. Remove the air filter element.
4. Remove the sponge material from its frame.
5. Wash the sponge material gently but thoroughly in solvent.
6. Squeeze the excess solvent out of the sponge material and let it dry.
7. Inspect the sponge material and replace it if damaged.
8. Thoroughly apply foam air filter oil or other quality liquid foam air filter oil (not spray type) to the sponge material.
9. Pull the sponge material over its frame.
10. Install the air filter element.
11. Install the air filter case cover and be sure the crankcase breather hose is connected.



① Holder (×6) ② Air filter case cover



① Air filter element

IMPORTANT

- Do not run the engine with filter element removed.
- Be sure to refit the cover with the arrow (on the rear of cover) upright if the cover is improperly fitted evacuator valve will not function and dust will adhere to the element.

◆ Evacuator Valve

Open the air cleaner cover once a week under ordinary conditions –or daily when used in a dusty place-to get rid of large particles of dust and dirt.
Check fuel line and fuel filter.

CAUTION

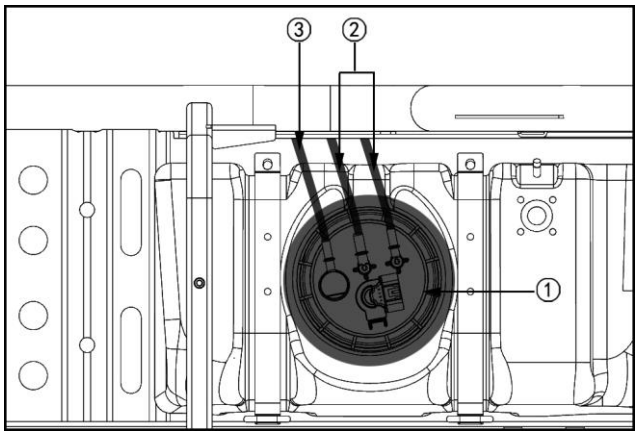
To avoid personal injury:

- **Be sure to stop the engine and remove the key when attempting to make the following checks and changes.**
- **Never fail to check the fuel lines periodically the fuel lines are subject to wear and aging fuel may leak out onto the running engine causing a fire.**
- **The fuel line connections should be checked annually or every 100 service hours whichever comes first.**

1. Park the vehicle on a flat surface and raise the cargo bed.
2. The fuel line is made of rubber and ages regardless of service period.
3. If the fuel line and clamps are found to be damaged or deteriorated replace them.
4. Check the fuel filter, if it is clogged by debris or contaminated with water replace it.

IMPORTANT

When the fuel line is disconnected for maintenance or repair, cover both ends of the fuel line with a piece of clean cloth or paper to prevent dust and dirt from entering. Care must be taken not to admit dust and dirt into the fuel pump entrance. Even a small amount of dust or dirt will cause premature wear and malfunction of the fuel pump and injector components.



① fuel pump ② fuel line
③ Exit pipe

■ Checking battery condition

CAUTION

To avoid personal injury

- **Never remove the battery while the engine is running.**
- **Keep electrolyte away from eyes, hands and clothes If you are spattered with it, wash it away completely with water immediately and get medical attention.**
- **Wear eye protection and rubber gloves when working around the battery.**

The factory –installed battery is non-refillable type if the battery is weak charge the battery is weak charge the battery or replace it with new one

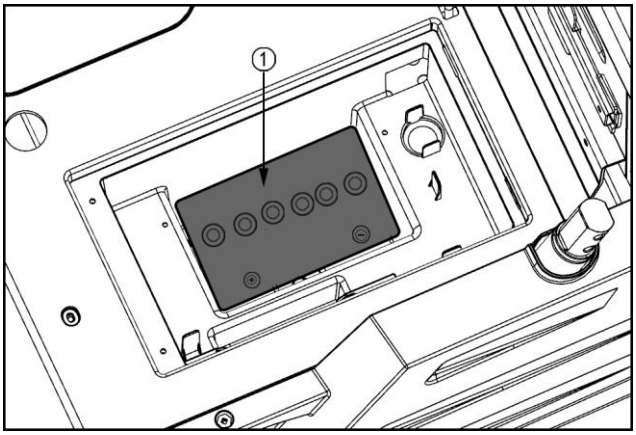
◆ Battery charging

CAUTION

To avoid personal injury

- **When the battery is being activated, hydrogen and oxygen gases in the battery are extremely explosive. Keep open sparks and flames away from the battery at all times, especially when charging the battery.**

- **When disconnecting the cable from the battery start with the negative terminal first; when connecting the cables to the battery start with the positive terminal first.**
- **Always use a voltmeter to check a battery's charge.**



① Battery

1. To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative. Then recharge in the standard fashion.
2. A boost charge is only for emergencies it will partially charge the battery as early as possible.
3. When exchanging an old battery for a new one use battery of equal specification shown in table 1.

Battery type	Volts
12V32Ah	12

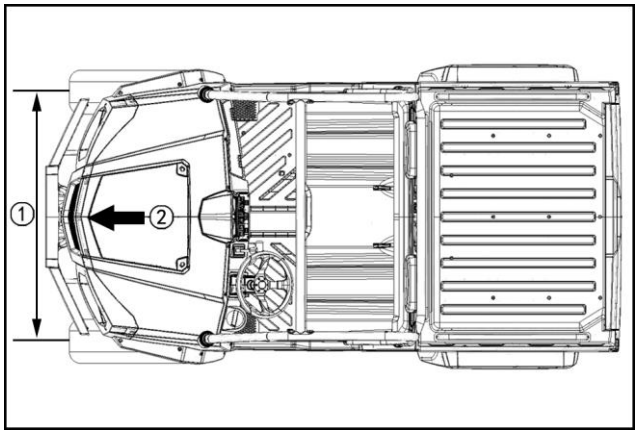
◆ Direction for storage

1. When storing the vehicle for a long period, remove the battery from level vehicle, store in a dry place out of direct sunlight.
2. The battery will self discharge while it is stored, recharge it once every three months in hot seasons and once every six months in cold seasons.

■ Adjusting toe-in

Proper toe-in	0 to12 mm (0 to 0.47 in)

1. Park vehicle on flat place.
2. Turn steering wheel so front wheels are in the straight ahead position.
3. Lock the park brake and stop the engine.
4. Measure distance between front tires center to center of tire at hub height ①. Rotate the tires 180 degrees and measure at the rear of the front tires.
5. Front distance should be shorter than rear distance if not adjust tie rod length.



① Wheel-to-wheel distance at front
② FRONT

◆ Adjusting procedures

1. Loosen the lock nut and turn the tie rod to adjust the rod length until the proper toe-in measurement is obtained.
2. Retighten the lock nut.

IMPORTANT

- Keep the equal length of the left and right tie-rod.

■ **Cleaning Muffler**

CAUTION

To avoid personal injury:

- **Before touching any part of an exhaust system, be absolutely sure that it has sufficient time to cool!**
- **Always wear safety goggles and face mask.**
- **The particulate matter contained in the muffler contains chemicals that are harmful to people, animals and marine life.**
- **If you are unable to do this work, have it done by your dealer.**
- **Cleaning spark arrester of muffler.**

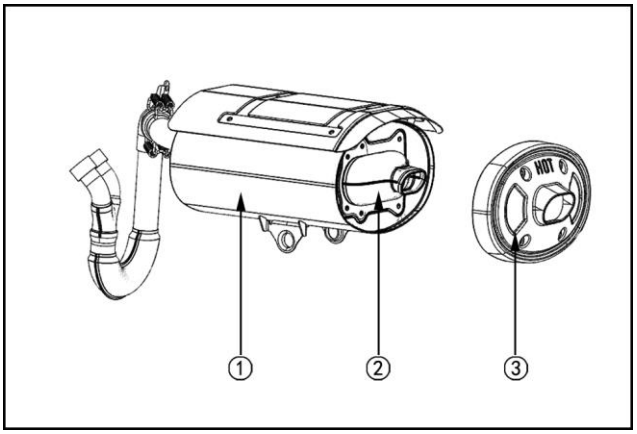
Maintenance & cleanout procedure:

The screen type spark arrester should be removed, cleaned, and inspected after every 100 hours of use.

1. The spark arrester is located inside of the exhaust pipe, and fastened with six bolts.
2. Loosen the bolts and remove the spark arrester.
3. Shake loosened particles out of the screen assembly and lightly clean the screen with wire brush. Soak in solvent and again clean with wire brush if necessary.
4. If any breaks in the screen or welds are discovered, the assembly must be replaced.
5. Return the spark arrester to the muffler body and refasten the bolts.

IMPORTANT:

- Visually check the muffler for cracks or holes in the body, weldment or pipes at regular intervals.
- USDA approval requires clearance between spark arrester sleeve and exhaust pipe to be no larger than 0.023”(0.584 mm).
- Replace the entire muffler if it is damaged.
- Do not operate the vehicle with a damaged muffler.



① Muffler ② Spark arrester

④ Back cover

EVERY 200 HOURS

■ **Changing Engine Oil**

CAUTION

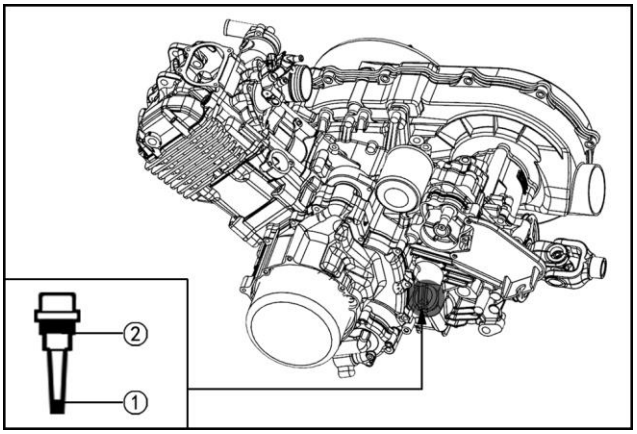
To avoid personal injury:

- **Be sure to stop the engine before replacing oil.**
- **Allow engine to cool down sufficiently, oil can be hot and can burn.**

1. Park the vehicle on flat surface and raise the cargo bed.
2. To drain the used oil, remove the drain plug at the bottom of the engine and completely drain the oil into an oil pan.
3. After draining, reinstall the drain plug.
4. Fill with the new oil up to the upper notch on the dipstick.

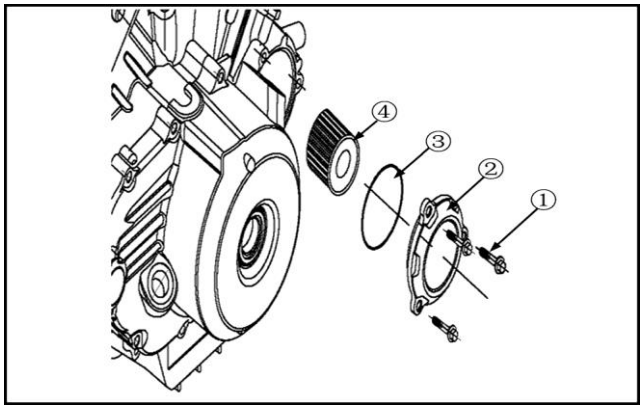
   (See “LUBRICANTS, FUEL AND COOLANT” in “MAINTENANCE” section.)

Oil capacity	[Filter exchanged]	1.8L (1.89U.S. qts.)
	[Filter non-exchanged]	1.6L (1.68U.S. qts.)



① Oil Level

② Dipstick



① Bolt; ② Cover

③ “O” seal ring; ④ Engine oil filter

■ Replacing Engine Oil Filter

⚠ CAUTION

To avoid personal injury:

- **Be sure to stop the engine before changing the oil filter cartridge.**
- **Allow engine to cool down sufficiently, oil can be hot and can burn.**

1. Park the vehicle on a flat surface, remove the seat and open the adjustment hatch cover.
2. Remove the oil filter.
3. Put a film of clean engine oil on the rubber seal of the new filter.
4. Tighten the filter quickly until it contacts the mounting surface.

   Tighten filter by hand an additional 1/2 turn only.
5. After the new filter has been replaced, the engine oil normally decreases a little. Make sure that the engine oil does not leak through the seal and check the oil level on the dipstick. Then replenish the engine oil up to the prescribed level.

IMPORANT:

- To prevent serious damage to the engine, use only a genuine filter.

■ Replacing Transmission Oil

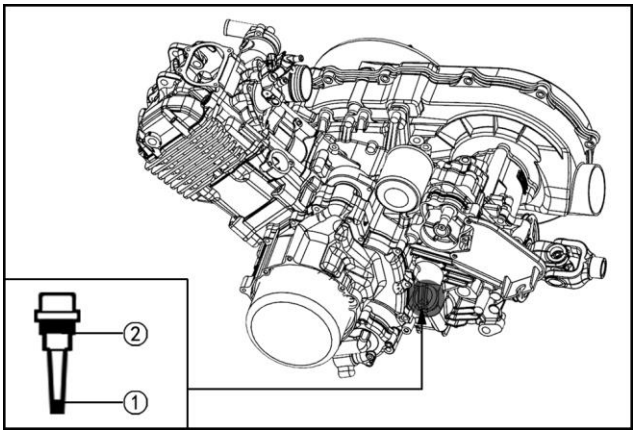
⚠ CAUTION

To avoid personal injury:

- **Be sure to stop the engine before changing oil.**
- **Allow engine to cool down sufficiently, oil can be hot and can burn.**

1. Park the vehicle on a flat surface, raise the cargo bed, and mount the safety support.
2. Put a film of clean transmission oil;
3. Quickly tighten the filter until it contacts the mounting surface, tighten it an additional 1 turn only.
4. After running the engine for a few minutes, stop the engine and check the oil level again. Add oil to the prescribed level.

Oil capacity	[Filter exchanged]	1L (1.05U.S. qts.)



① Oil Level

② Dipstick

■ Checking Brake Pedal

⚠ CAUTION

- Stop the engine and chock the wheels before checking brake pedal.
- If movement is outside of the specifications contact your local dealer for adjusting the brake.

◆Checking the brake pedal free travel

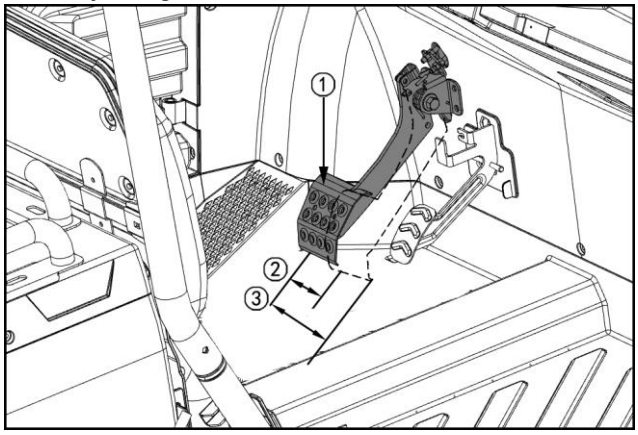
Proper brake pedal free travel	7 to 14mm (0.3 to in.)On the pedal

1. Release the parking brake.
2. Slightly depress the brake pedal and measure free travel at the top of the pedal stroke.
3. If brake pedal free travel is outside of the specifications, contact your local dealer for adjusting the brake.

◆ Checking the brake pedal stroke

Pedal stroke	Less than 120mm (4.7in.) On the pedal

1. Release the parking brake.
2. Step on the pedal and measure the pedal stroke.
3. If brake pedal stroke is outside of the specifications, contact your local dealer for adjusting the brake.



① Brake pedal

② “FREE TRAVEL” ③ “PEDAL STROKE”

■ Checking Brake Hose and Pipe

1. Check to see that brake hoses and lines are not swollen, hardened or cracked.
2. Check the brake hoses and fittings for oil leaks.
3. If there is any abnormality, consult your local dealer for this service.

■ Checking Brake Light Switch

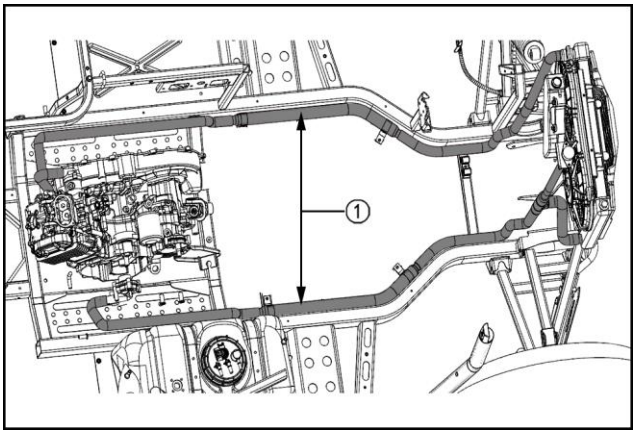
1. Park the vehicle on a flat surface and raise the cargo bed.
2. Turn the key switch to the “ON” position.
3. Step on the brake pedal to check if the brake light comes on.
4. If it does not, check the bulb or brake light switch.

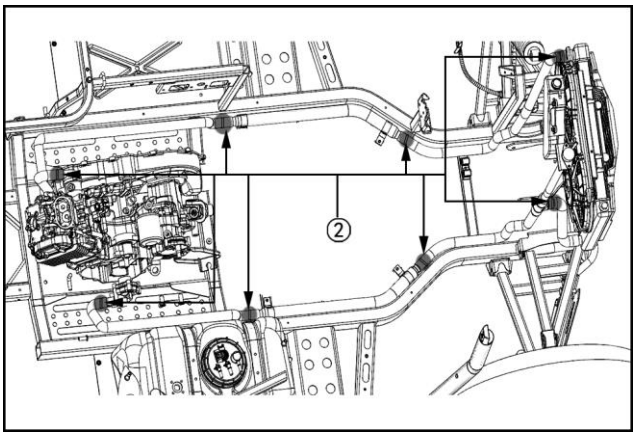
■ Checking the Radiator Hoses and Clamps

Park the vehicle on a flat surface and raise the cargo bed. Check to see if radiator hoses are properly fixed every 200 hours of operation or six months, whichever comes first.

1. If hose clamps are loose or water leaks, tighten bands securely.
2. Replace hoses and tighten hose clamps securely, if radiator hoses are swollen,

hardened or cracked. Replace hoses and hose clamps every 2 years or earlier, if checked and found that hoses are swollen, hardened or cracked.





① Radiator hose ② Clamp bands

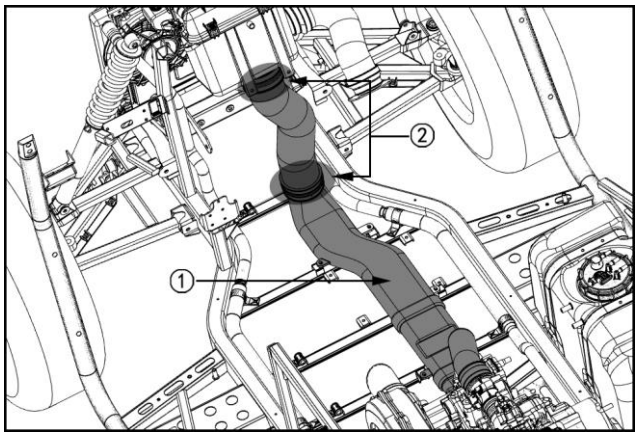
◆Precaution at Overheating

Take the following actions in the event the coolant temperature is close to or more than the boiling point, which is called “Overheating”.

1. Stop the vehicle operation in a safe place and keep the engine unloaded idling.
2. Don’t stop the engine suddenly, but stop it after about 5 minutes of unloaded idling.
3. Keep yourself well away from the vehicle for at least 10 minutes or while the steam is blowing out.
4. Check to see if there is no danger such as burning, get rid of the causes of overheating by following the “TROUBLESHOOTING” section of the manual, and then start the engine again.

■ Checking Intake Air Line

1. Check to see if the hoses and hose clamps are tight and not damaged.
2. If hoses and clamps are found to be worn or damaged, replace or repair them at once.



① Hose ② Hose joint

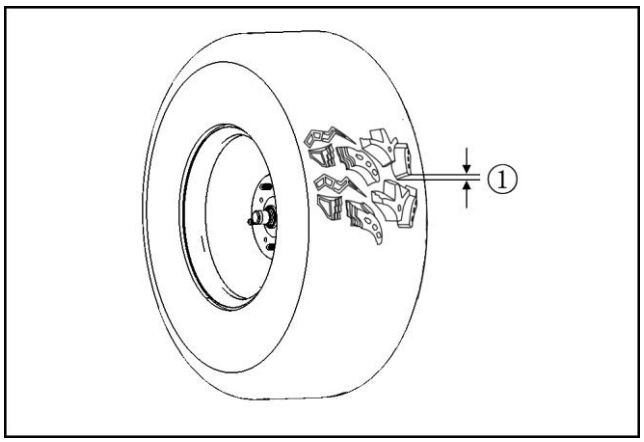
EVERY 300 HOURS

■ Checking the Tires

1. Check to see if the tires are damaged.
2. If the tires are cracked, bulged, or cut, or they are worn out, replace or repair them at once.

◆Tire Tread Depth

Always replace the tires when the tread depth is worn to minimum allowable.



① 3mm(0.12in)

EVERY 400 HOURS

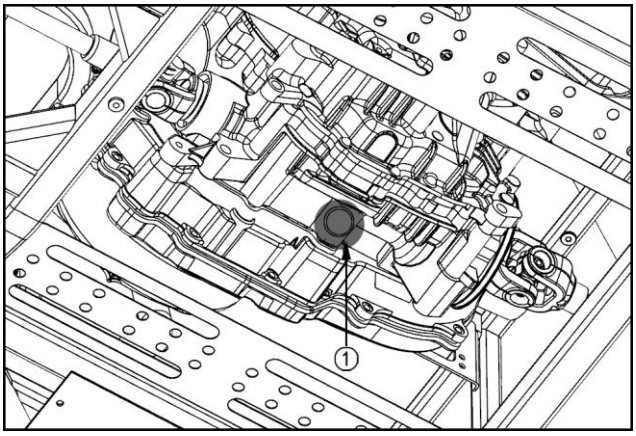
■ Changing Transmission Fluid

⚠ CAUTION

To avoid personal injury:

- **Park the vehicle on a flat surface, raise the cargo bed, mount the safety support.**
- **Allow engine to cool down sufficiently, oil can be hot and can burn.**

1. Park the vehicle on a flat surface, raise the cargo bed, mount the safety support.
2. To drain the used oil, remove the drain plug at the bottom of the transmission case and drain the oil completely into the oil pan.
3. After draining, reinstall the drain plug.
4. After running the engine for a few minutes, stop the engine and check the oil level again; add oil to prescribed level.



① Drain plug

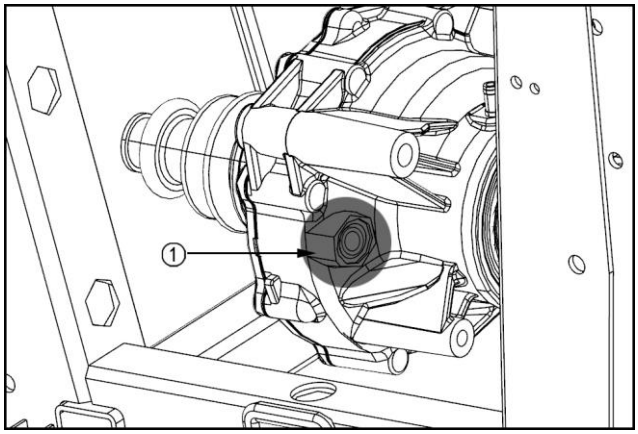
IMPORTANT:

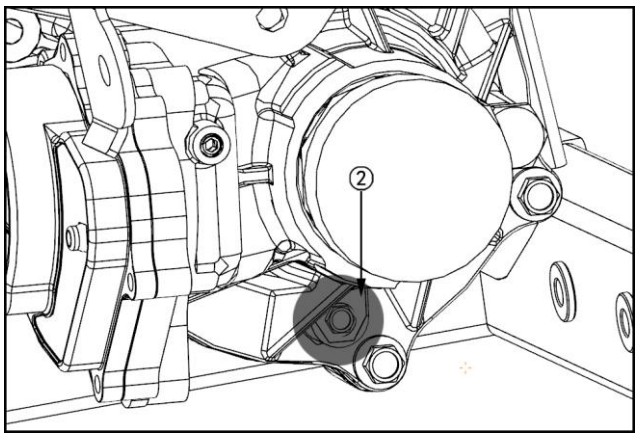
- Do not operate the vehicle immediately after changing the transmission fluid.
- Run the engine at medium speed for a few minutes to prevent damage to the transmission.

■ Changing Front and Rear Axle Case Oil

1. Park the vehicle on a firm, flat and level surface.
2. To drain the used oil, remove the drain the oil completely into the oil pan.
3. Fill with the new oil up to the upper notch on the dipstick.
   (See “LUBRICANTS, FUEL AND COOLANT” in “MAINTENANCE” section.)
4. After filling, reinstall the filling plug.

Oil capacity for front axle case	0.6L（0.6U.S.gals.）
Oil capacity for rear axle case	?





① Front axle case drain plug
② Rear axle case drain plug

EVERY 500 HOURS

■ Replacing Fuel Filter

Consult your local dealer for this service.

EVERY 600 HOURS

■ **Adjusting Engine Valve Clearance**

Consult your local dealer for this service.

EVERY 1500 HOURS

■ **Checking Injection and Fuel Pump**

Consult your local dealer for this service.

EVERY 1 YEAR

■ **Replacing Air Cleaner Primary Element and Secondary Element**

(See “Cleaning Air Cleaner Primary Element” in “every 100 HOURS” in “PERIODIC SERVICE” section.)

EVERY 2 YEARS

■ **Changing Brake Fluid**

Consult your local Dealer for this service.

(See “Checking Brake Fluid Level” in “DAILY CHECK” in “PERIODIC SERVICE” section.

■ **Flushing Cooling System and Changing Coolant**

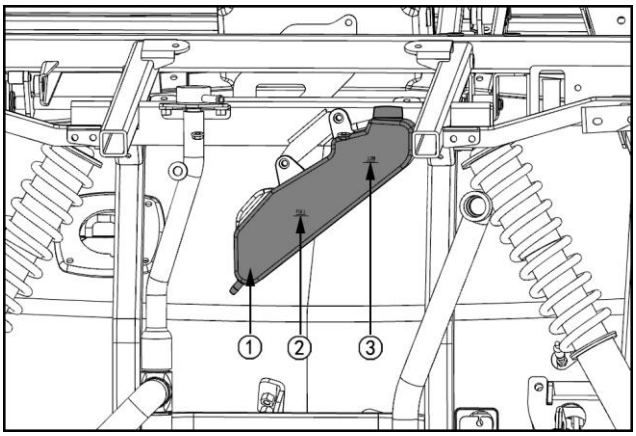
CAUTION

To avoid personal injury:

- **Do not remove the radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely.**

1. Stop the engine and let cool down.
2. To drain the coolant, open the radiator drain plug and remove radiator cap. The radiator cap must be removed to completely drain the coolant.
3. After all coolant is drained, close the drain plug.
4. Fill with clean water and cooling system cleaner.
5. Follow directions of the cleaner instruction.
6. After flushing, fill with clean water and anti-freeze until the coolant level is just below the radiator cap.
   Install the radiator cap securely.
7. Fill with fresh water up to the “FULL” mark on the recovery tank.
8. Start and operate the engine for few minutes.
9. Stop the engine and let cool.
10. Check coolant level of recovery tank and coolant if necessary.

Coolant capacity	4.0L (4.2U.S.qts.)



① Recovery tank ② FULL”
③ “ LOW”

IMPORTANT:

- Do not start engine without coolant.
- Use clean, fresh water and anti-freeze to fill the radiator and recovery tank.
- When the anti-freeze is mixed with water, the antifreeze mixing ratio must be less than 50%.
- Securely tighten radiator cap. If the cap is loose or improperly fitted, water may leak out and the engine could overheat.

■ **Anti-Freeze**

CAUTION

To avoid personal injury:

- When using antifreeze, put on some

protection such as rubber gloves. (Antifreeze contains poison.)

- If you should drink antifreeze, throw up at once and seek medical attention.
- When antifreeze comes in contact with the skin or clothing, wash it off immediately.
- Do not mix different types of Antifreeze.

The mixture can produce chemical reaction causing harmful substances.

- Antifreeze is extremely flammable and explosive under certain conditions. Keep fire and children away from antifreeze.
- When draining fluids from the engine, place some container underneath the engine body.
- Do not pour waste onto the grounds, down a drain, or into any water source.
- Also, observe the relevant environmental protection regulations when disposing of antifreeze.

If it freezes, coolant can damage the cylinders and radiator. If the ambient temperature falls below 0℃(32˚F) or before a long-term storage, let out cooling water completely, or mix fresh water with long-life coolant and fill the radiator and recovery tank with the mixture. •

1. Long-life coolant (hereafter LLC) comes in several types. Use ethylene glycol (EG) type for this engine.
2. Before employing LLC-mixed cooling water, fill the radiator with fresh water and empty it again.

   Repeat this procedure 2 or 3 times to clean up the inside.
3. Mixing the LLC
4. The procedure for the mixing of water and antifreeze differs according to the make of the antifreeze and the ambient temperature. Refer to SEA J1034 standard, more specifically also to SAE J814c.

IMPORTANT:

- When the antifreeze is mixed with water, the antifreeze mixing ratio must be less than 50%.

VOL% Anti-freeze	Freezing point		Boiling point	
	℃	˚F	℃	˚F
40	-24	-12	106	222
50	-37	-34	108	226

*At 1.013×10^5Pa (760mmHg) pressure (atmospheric).

A higher boiling point is obtained by using a radiator pressure cap which permits the development of pressure within the cooling system.

5. Adding the LLC

1) Add only water if the mixture reduces in amount by evaporation.
2) If there is a mixture leak, add the LLC of the same manufacturer and type in the same mixture percentage.

   * Never add any long-life coolant of different manufacturer. (Different brands may have different additive components, and the engine may fail to perform as specified.)

6. When the LLC is mixed, do not employ any radiator cleaning agent. The LLC contains anticorrosive agent. If mixed with the cleaning agent, sludge may build up, adversely affecting the engine parts.
7. The vehicle's genuine long-life coolant has a service life of 2 years. Be sure to change the coolant every 2 years.

NOTE:

- The above data represent industry standards that require a minimum glycol content in the concentrated antifreeze.
- When the coolant level drops due to evaporation, add water only to keep the

antifreeze mixing ratio less than 50%. In case of leakage, add antifreeze and water in the specified mixing ratio before filling into the radiator.

■ Replacing Radiator Hose (Water pipes)

Replace the hoses and clamps.

(See “Checking Radiator Hose and Clamp” in “EVERY 200 HOURS” in “PERIODIC SERVICE” section.)

■ Replacing Fuel Hose

Consult your local Hisun Dealer for this service.

■ Replacing Brake Master Cylinder (Inner parts)

Consult your local dealer for this service.

■ Replacing Front Brake Seal

Consult your local dealer for this service.

■ Replacing Rear Brake Cylinder Seal

Consult your local dealer for this service.

■ Replacing Intake Air Line

Consult your local dealer for this service.

EVERY 4 YEARS

■ Replacing Brake Hose

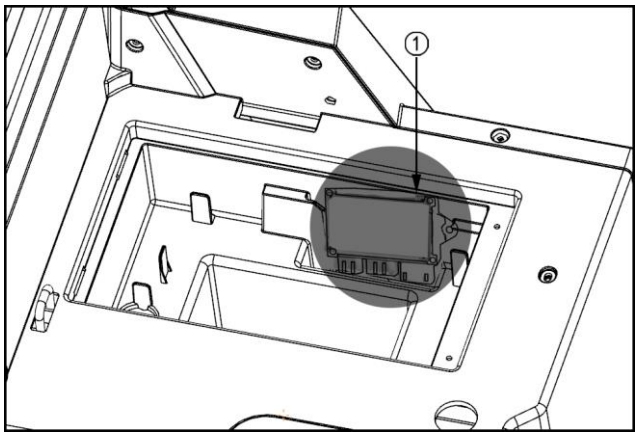
Consult your local Dealer for this service.

■ Replacing Mini Blade Fuses

The mini blade fuses are intended to protect the electrical wiring. If any of them have blown out, be sure to pinpoint the cause.

◆Replacing procedure

1) Disconnect the negative cable of the battery.
2) Open the mini blade fuse box cover.
3) Pull out the mini blade fuse.
4) Insert a new mini blade fuse into the slow-blow fuse box.
5) Close the mini blade fuse box cover.
6) Connect the negative battery cable.



① Mini Blade fuse box cover

■ Replacing Light Bulb

- Head lights

  Take the bulb out of the light body and replace it with a new one.
- Other lights

  Detach the lens and replace the bulb

Light	Capacity
Head lights	2x55W
Tail light	LED 0.5W
Brake light	LED 1W
Instrument panel light	1W

STORAGE

STORAGE

⚠ CAUTION

To avoid personal injury:

- **Do not clean the vehicle when the engine is running.**
- **To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.**
- **When storing, remove the key from the key switch to avoid unauthorized persons from operating the vehicle and getting injured.**

VEHICLE STORAGE

If you intend to store your vehicle for an extended period of time, follow the procedures outlined below.

These procedures will insure that the vehicle is ready to operate with minimum preparation when it is removed from storage.

1. Check the bolts and nuts for looseness, and tighten if necessary.
2. Apply grease to vehicle areas where bare metal will rust also to pivot areas.
3. Unload from cargo bed.
4. Inflate the tire to a pressure a little higher than usual.
5. Change the engine oil and run the engine to circulate oil throughout the engine block and internal moving parts for about 5 minutes.
6. With all implements lowered to the ground, coat any exposed rods with grease (if equipped).
7. Remove the battery from the vehicle. Store the battery following the battery storage procedures.
8. Keep the vehicle in a dry place where the vehicle is sheltered from the elements. Cover the vehicle.
9. Keep the vehicle indoors in a dry area that is protected from sunlight and excessive heat. If the vehicle must be stored outdoors, cover it with a waterproof tarpaulin.

   Put boards under the tires to keep dampness away from tire.

   Keep the tries out of direct sunlight and extreme heat.

IMPORTANT:

- When washing the vehicle, be sure to stop the engine.

  Allow sufficient time for the engine to cool before washing.
- Do not wash with a pressure washer.
- Cover the vehicle after the muffler and the engine have cooled down.

REMOVING THE VEHICLE FROM STORAGE

1. Check the tire air pressure and inflate the tires if they are low.
2. Before installing the battery, Be sure it is fully charged.
3. Check to see if the fan works.
4. Check all fluid levels (engine oil, transmission oil, engine coolant, transmission coolant and any attached implements).
5. Start the engine. Observe all gauges. If all gauges are functioning properly and reading

normal, move the vehicle outside. Once outside, park the vehicle and let the engine idle for at least five minutes. Shut the engine off and do a visual inspection looking for evidence of oil or water leaks.

6). With the engine fully warmed up. Release the parking brake and test the brakes for proper adjustment as you move forward. Adjust the brake as necessary.

TROUBLESHOOTING

ENGINE TROUBLESHOOTING

If something is wrong with the engine, refer to the table below for the cause and its corrective countermeasure.

Trouble	Cause	Countermeasure
Engine is difficult to start or Will not start.	● No fuel flow	● Check the fuel tank and fuel filter。 ● Check the electric fuel pump. ● Check the injector. ● Check the ECU with Motor Scan KF90121. ● Replace filter electric fuel pump injector and ECU If necessary.
	·Water is in the fuel system	● Check to see if the fuel tank cover is tight.
	● In winter, oil viscosity increases, and Engine revolution is slow.	● Use oils of different viscosities, depending on ambient temperatures.
	● Battery becomes weak and the engine does not turn over quick enough.	● Clean battery cables and terminals. ● Charge the battery. ● In cold weather (-15℃), always remove the battery from the vehicle, charge and store it indoors. install it on the vehicle only when the vehicle is going to be used。
Engine power is insufficient	● Insufficient fuel. ● The injector is clogged. ● Crankshaft position sensor is Spoiled. ● The air cleaner is clogged. ● Spark plug is dirty or spoiled. ● Ignition coil is spoiled.	● Check the fuel system. ● Clean or replace the injector. ● Replace crankshaft position sensor. ● Clean or replace the air cleaner. ● Clean or replace the spark plug. ● Replace the ignition coil.
Engine stops suddenly	● Check with the diagnostic instrument (Motor Scan KF90121).	
Engine overheats	● Engine overloaded	● Shift to lower gear or reduce load.
	● Low coolant level.	● Fill cooling system to the correct level; ● Check radiator and hoses for loose connections or leaks.
	● The motor driven fan does not turn.	● Check to see if the fuse is not blown. ● Check the electric system.
	● Dirty radiator core or grille screens.	● Remove all trash.
	● Coolant flow route corroded.	● Flush cooling system.

If you have any questions, consult your local dealer.

Check malf code meaning by reading the below table.

Mt05 ECU Malf Code Table:23	
Malf code in MT05	Description
P0107	MAP Circuit Low Voltage or Open
P0108	MAP Circuit High Voltage
P0112	IAT Circuit Low Voltage
P0113	IAT Circuit High Voltage or Open
P0117	Coolant/Oil Temperature Sensor Circuit Low Voltage
P0118	Coolant/Oil Temperature Sensor Circuit High Voltage or Open
P0122	TPS Circuit Low Voltage or Open
P0123	TPS Circuit High Voltage
P0131	O2A Circuit Low Voltage
P0132	O2A Circuit High Voltage
P0031	O2A Heater Circuit High Voltage
P0032	O2A Heater Circuit Low Voltage
P0201	Injector 1 Circuit Malfunction
P0202	Injector 2 Circuit Malfunction
P0230	FPR Coil Circuit Low Voltage or Open
P0232	FPR Coil Circuit High Voltage
P0336	CKP Sensor Noisy Signal
P0337	CKP Sensor No Signal
P0351	Cylinder 1 Ignition Coil Malfunction
P0352	Cylinder 2 Ignition Coil Malfunction
P0505	Idle Speed Control Error
P0562	System Voltage Low
P0563	System Voltage High
P0650	MIL Circuit Malfunction
P1693	Tachometer Circuit Low Voltage
P1694	Tachometer Circuit High Voltage

If you have any questions, consult your local dealer.

BATTERY TROUBLESHOOTING

Trouble	Cause	Countermeasure	Preventive measure
Starter does not function	● Battery overused until lights are dim.	● Charge the battery sufficiently.	● Charge the battery properly.
	● Battery has not been recharged.		
	● Poor terminal connection	● Clean the terminal and tighten securely.	● Keep the terminal clean and tight. Apply grease and treat with anti-corrosive.
	● Battery life expired	● Replace with a new battery	
From beginning starter does not function, and lights soon become dim	● Insufficient charging	● Charge battery Insufficiently	● Battery must be serviced properly before initial use
When viewed from the top of plates, look whitish. * Refillable type battery only	● Battery was used with an insufficient amount of electrolyte.	● Add distilled water and charge the battery.	● Regularly check the electrolyte level.
	● Battery was used with too much without recharging.	● Charge battery Insufficiently	● Charge battery properly
Recharging is impossible.	● Battery life expired.	● Replace battery.	
Terminals are severely corroded and heat up.	● Poor terminal connection	● Clean the terminal and tighten securely.	● Keep the terminal clean and tight. Apply grease and treat with anti-corrosives.
Battery electrolyte level drops rapidly. * Refillable type battery only	● There is a crack or pin holes in the electrolytic cells.	● Replace battery.	
	● Charging system trouble.	● Consult your local dealer.	

- If you have any questions, consult your local dealer.
- The factory installed battery is non-refillable type.

MACHINE TROUBLESHOOTING

Trouble	Cause	Countermeasure
Non agility for Gearshift	● High idling speed of engine	● Replace throttle cable; ● Replace throttle petal ● Replace he throttle
	● High rotary speed for clutch connection.	● Replace he junior clutch spring; ● Replace the primary clutch.
	● Not good adjustment for gearshift stay wire.	● Put the gearshift rod into the position of “N”. ● Put the gearshift arm of engine into ”N”. ● Adjust the stay wire and the bolt. ● Lock tightly.
	● Gear abrasion	● Replace the gears
Transmission noise	● Big matching clearance for the inner and outside gears of transmission shaft	● Replace the gears
	● Big clearance of transmission gears.	● Replace the gears
	● Not good connection of gear end face	● Replace the gears
Less vehicle power	● Parking brake	● Loosen the lay-up rod
	● Not full Uncoupling for disc brake	● Contact the distributor.
	● CVT transmission sliding	● Removing the grease for the clutch. Replace CVT transmission belt Replace the clutch.
No good brake or noise	● Less brake oil	● Check the braking oil level
	● Air inside the braking system.	● Contact the distributor.
	● Brake discs abrasion	● Contact the distributor.
	● Assembling bolt of disc plate loose	● Lock tightly
	● Assembling bolt for disc brake clippers loose	● Lock tightly

If you have any questions, consult your local dealer.

OPTIONS

Consult your local dealer for further details.

1. Head rest；
2. Plastic Canopy；
3. Rear Trailer Hitch & Pin(2″)；
4. Windshield；
5. Steel Cab；
6. Motor Scan KF90121;
7. EPS

ELECTRIC POWER STEERING SYSTEM

INTRODUCTION

Our UTV is equipped with Electric Power Steering System (EPS). To keep reliability of EPS during operation, please correctly use EPS system according to the following descriptions and keep daily inspection and maintenance.

This chapter also provides important information to safely use EPS system. If you encounter any problem during operation or maintenance, please feel free to consult your local dealer.

ADVANTAGES OF EPS SYSTEM:

1) High efficiency. Traditional hydraulic power steering system is connected by mechanical and hydraulic, and it is of low efficiency, usually only 60%-70%. However, EPS system is connected by mechanical and electric motor and it is much high efficiency with up to 90%.
2) Less energy consumption. In practical driving process of UTV, time in steering condition is only 5% among the total travelling time. As to hydraulic power steering system, as long as the engine is running, the hydraulic pump is always in working condition, and fuel consumption will increase 4%-6%. However, EPS system starts the motor, only when it needs steering, to generate power without increasing fuel consumption.
3) The power characteristics of EPS system can be controlled by software, so that UTV can be satisfied with power steering characteristics at various speeds.
4) Feeling comfortable on road. Inside of EPS system, we use rigid connection, so under auxiliary of start motor, the impact of road barriers on steering wheel can be greatly decreased.
5) No pollution to environment. For the traditional hydraulic power steering system, the hydraulic circuit has hydraulic hose and fittings inside so oil leaks may occur, and hydraulic hose is not recycled, so this is produce pollution to environment. However, EPS system has not pollution to environment.
6) When engine does not start, EPS system can also work as battery, and once sufficient power generate, steering power can be workable.

IMPORTANT INFORMATION FOR SAFETY:

UTV you buy is equipped with EPS system, please read this chapter carefully before operating UTV, and only you are familiar with and master enough of EPS system about using methods and precautions information can you start to drive your UTV.

Make inspection and maintenance on EPS system on regular, and ensure the security and reliability when you use your UTV.

- Please carefully read this chapter before operation or driving to acknowledge completely about correct way to operate and drive the UTV with EPS system, and also characteristics, functions and limits of UTV. Doing inspection and maintenance on EPS system on regular, correct operation and driving skills will ensure the security and reliability of UTV.

- To make sure your EPS system will be useful for a long time and no problem, please follow the method for maintenance in this chapter.
- This chapter also includes detailed disassembly and maintenance information. User wants to repair by themselves must have qualified mechanical skills, electronic maintenance skills and the special tools mentioned in the manual.

INTRODUCTION OF EPS SYSTEM

■ What is EPS system

The EPS system (Electric Power Steering System) is a complete set of parts, including a special ECU only for EPS system (hereinafter referred to as ECU), many sensors and actuators, by signal such as monitoring UTV speed, the operating force of the steering wheel, as well as temperature of ECU and motor to provide an accurate power torque of the motor and aligning torque. As a result, it will have easy steering function and soft effect of steering wheel aligning.

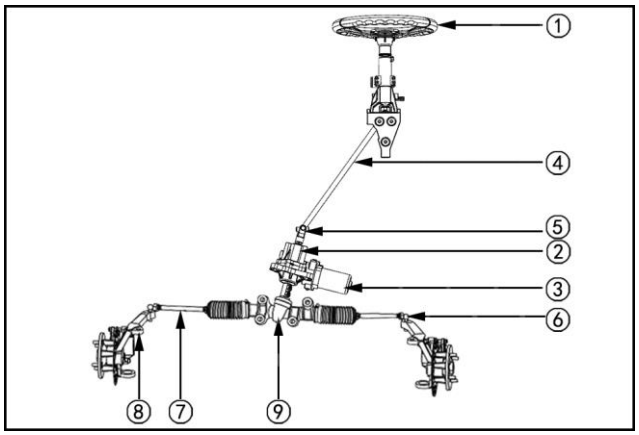
■ Typical parts of EPS system

In general, EPS system has the following parts:

- Steering torque sensor
- Motor to generate power torque
- EPS system control unit (ECU)。
- Speed sensor。
- Temperature sensor
- Battery voltage sensor
- Mechanical reduction transmission mechanism(Reducer)
- Gear/rack type steering gear
- Steering rod joint
- Ball stud of steering knuckle
- Steering shaft and universal joint

■ Construction of EPS

1. Structure chart of EPS



① Steering wheel

② Reducer

③ Motor

④ Steering transmission shaft

⑤ Universal joint

⑥ Tie rod joint

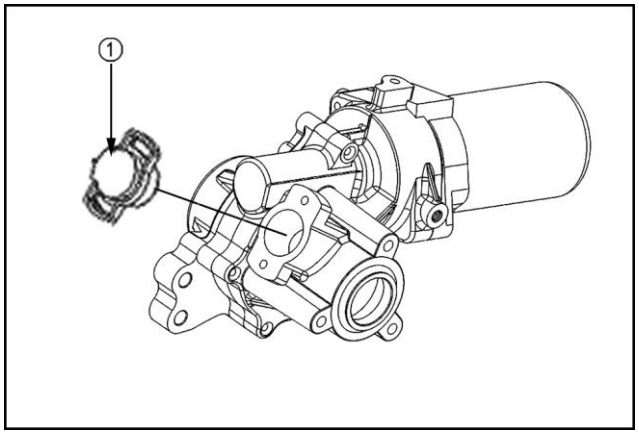
⑦ Tie rod

⑧ Steering knuckle

⑨ Steering gear

2. Steering Torque Sensor：

Install sensor on the reducer.



① Sensor

No change after the sensor fixed.

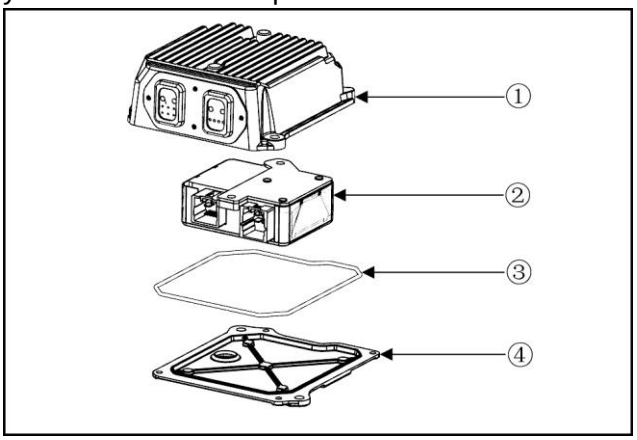
Sensor assembly position is certained and can not make any change, if found sensor postion was changed caused by bolt looseness,please tighten the bolt and initialize the ECU at once（See Page12-12）

3. ECU：

ECU is sophisticated electronic equipment, and

controls all the power performance of EPS, so do not repair ECU by yourself.

If any problem happens on ECU, please contact your local dealer to repair it.



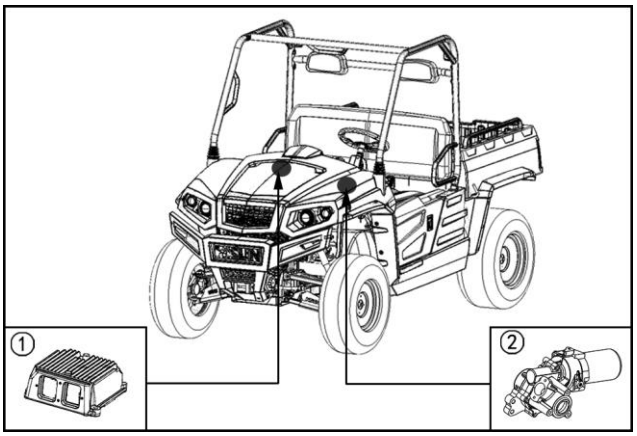
① Upper housing

② ECU unit

③ Seal ring

④ Lower housing

Installation position of ECU and reducer



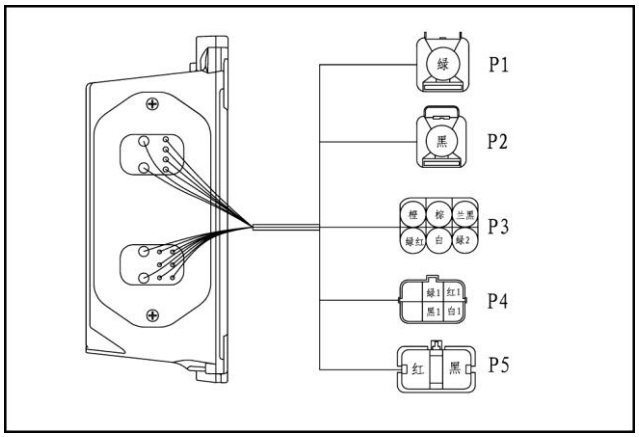
① ECU ② Reducer

The installation location of the ECU will be greatly effected by temperature changes and external humidity. Housing has a membrane made of Goretex material for pressure balance between inside the shell and the surrounding environment, but also to prevent the parts from moisture intrusion.

Do not remove the membrane or replace by other parts.

On the shell of ECU unit, there are sets of electric plugs by cables and function as follows:

- P1：positive pole (⊕ pole) for EPS motor
- P2：negative pole (⊖ pole) for EPS motor
- P3：connect with cable of UTV and transfer single that ECU required
- P4：connect with steering torque sensor, supply power to steering torque sensor and accept single of torque
- P5：connect with motor

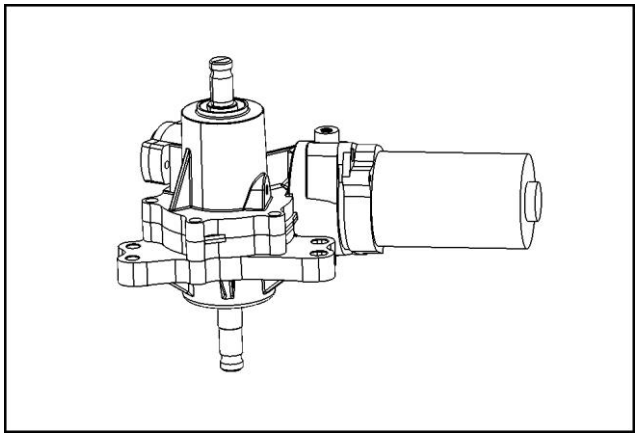


4. Reducer：

Install reducer on the frame of UTV.

Install motor and steering torque sensor on reducer.

Outside view of reducer

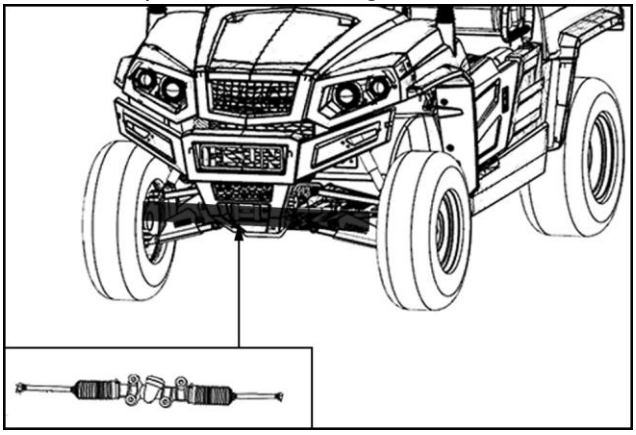


5. Gear/rack type steering gear

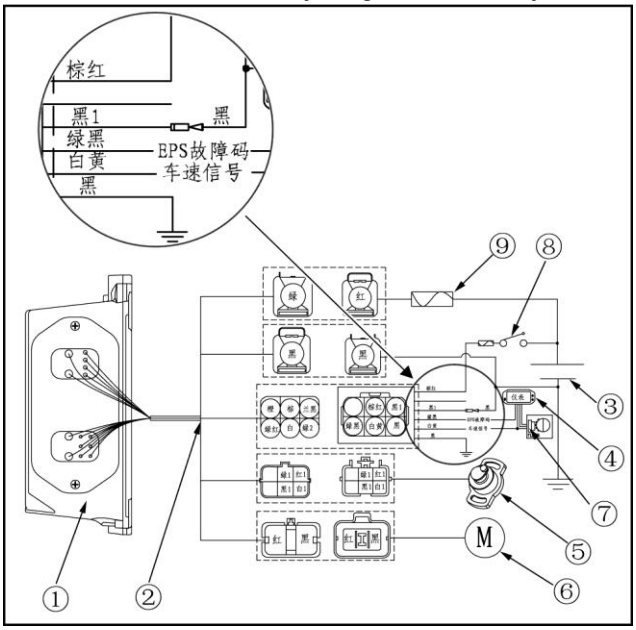
UTV use gear/rack type steering gear to perform steering function. Steering gear was fixed on

frame.

Installation position of steering as follows:



6. Electronic connectivity diagram of EPS system：



① ECU (with waterproof metal box)

② ECU split cable

③ Battery

④ Meter

⑤ Steering torque sensor

⑥ Motor

⑦ Speed sensor

⑧ Main switch

⑨ Fuse

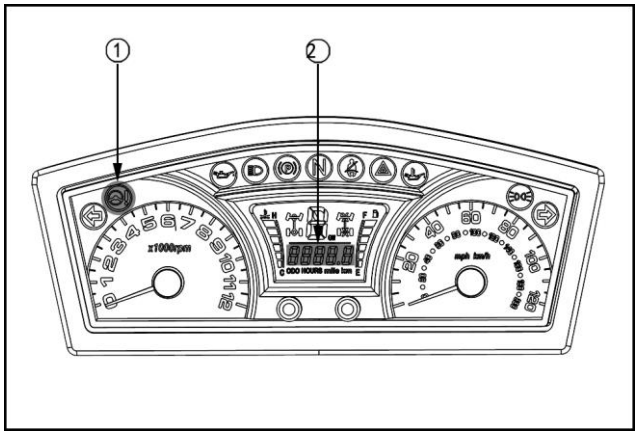
7. Meter：

Meter is an important part of UTV.

Meter works together with EPS system and monitors working condition of EPS system.

Fault can be displayed by fault indicator light and fault indicator of EPS system, so the driver can acknowledge fault of EPS in time and take some measures to keep himself/herself safe.

When fault occurs on EPS system, fault indicator light will be lit up. At the same time, fault indicator of EPS system will display the fault code for maintenance.



① Fault indicator light of EPS system

② Fault indicator of EPS system

Fault code diagram

No.	Fault code	Fault style	Fault indicator light of EPS system
1	F00001	1#fault of steering torque sensor	lit
2	F00002	2#fault of steering torque sensor	lit
3	F00006	ECU overheating	lit
4	F00005	low voltage battery alarm	lit
5	F00003	Dynamic motor without power alarm	lit
6	F00011	Fault of speed sensor	lit
7	F00010	ECU non-working	lit

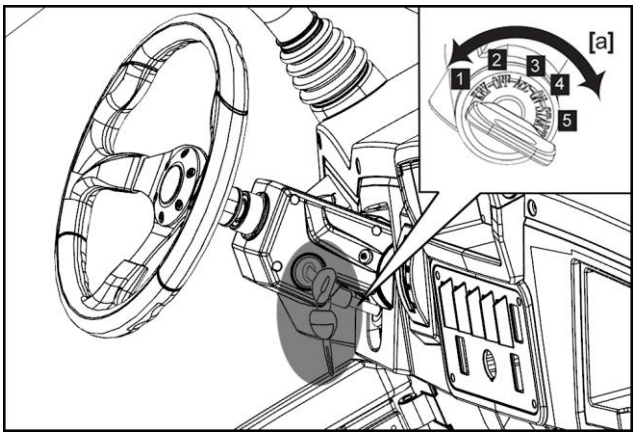
OPERATION AND USE OF EPS SYSTEM

■ EPS system operation

Operate as the following steps:

- Assembling your new UTV.
- Ensure main switch is off.

main switch



①Main switch

②OFF

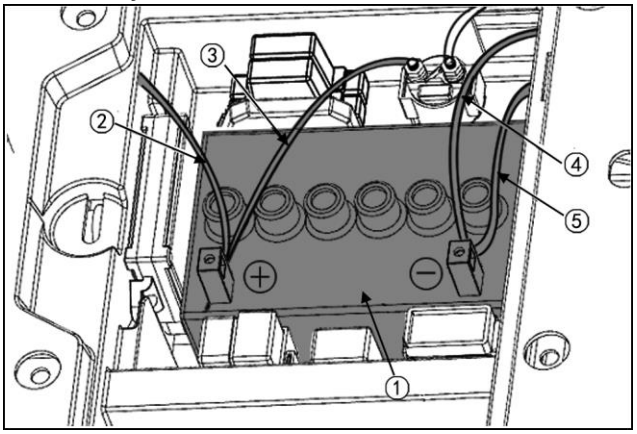
③ON

④START

CAUTION

If main switch is not off, ECU can be destroyed by battery power in on-off condition during the following connection with cables.

- Use screw/nut to connect the connecting terminals of cables firmly to ⊕ and ⊖ of battery.



① Battery

② Positive Wire Of Cable

③ Positive Wire Of EPS System

④ Negative Wire Of Cable

⑤ Negative Wire Of EPS System

⑥ Nut

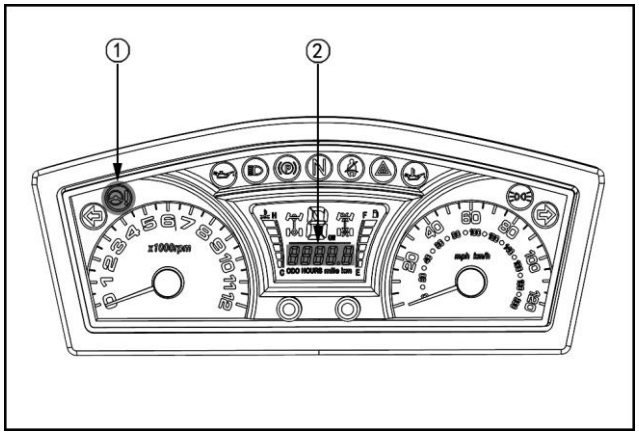
⑦ Screw

CAUTION

If connection terminals do not fixed, power of ECU may be constantly on-off during UTV driving, and finally cause ECU damaged.

- Open main switch of UTV, and EPS system will automatically enter into working state.
- Check the meter. If fault indicator light of EPS system does not be lit, ECU can be for regular use.
- If fault indicator light of EPS system is lit, that means EPS system find out some fault during ECU self-checking process, then you should consult your local dealer for maintenance in time.

Meter



① Fault indicator light of EPS system

② Fault indicator of EPS system

DANGER

Drive UTV with faulty EPS system may cause accident, severe injury or even death.

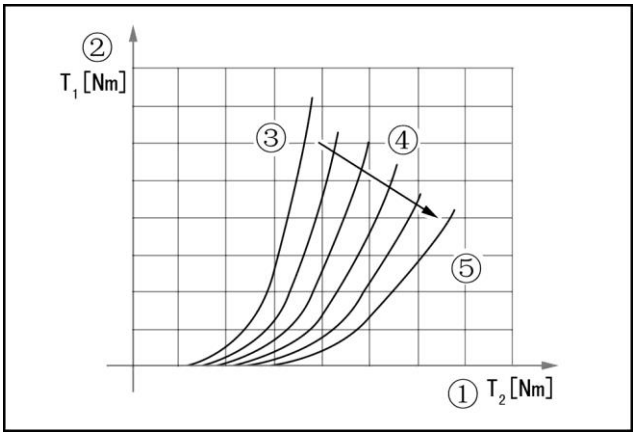
Never operate UTV with faulty EPS system.

■ **Function of EPS system**

- EPS system requires enough power to supply correct power torque.
- Supply steering power according to speed

UTV's steering power can change as different various speeds and steering angle.

EPS systems can supply different power torque depending on the speed and steering angle.



① T1：steering resistant torque which is checked by steering power sensor

② T2：power torque on steering gear which is supplied by EPS system

③ Power Torque In Static Condition

④ Power Torque At Middle Speed

⑤ Power Torque At The Highest Speed

Stationary, the maximum power torque can make UTV U-turn or stop into place as much as possible to ease the steering operation.

With increased speed, reduce power torque can make UTV at high speed, to make ii easier to maintain driving direction.

As shown, power auxiliary effect depends not only on speed, but also steering torque exerted by the driver. If the driver is to impose a smaller steering torque, power torque of the EPS system will be relatively small. This can be achieved outstanding auto-centering effect, that means when UTV is in straight-line, steering system will be not sensitive (the steering wheel does not move from side to side).

- Fault alarm and protection function

In order to ensure EPS system can supply a long-term, reliable working, a variety of detection and alarm functions are set in the ECU software program. Once fault has been checked on EPS system, UTV can accurate shutdown the EPS system.

Shut off the EPS system, UTV will be able to continue to complete the steering function through the mechanical structure of the steering system. However, at this time the driver will feel the turning resistance increases, you can continue your driving of UTV only throw a greater force to operate the steering system.

⚠ DANGER

When meter indicated malfunction of EPS system or when the driver found EPS system operation abnormally, please do some steps as below：

- Stop vehicles immediately, close the main switch, open the front panel's repair cover, and pull up the outlet which power supply for EPS system (See page12-3)
- Driving UTV to dealer by lower velocity and repair EPS system.

EPS SYSTEM'S INSPECTION, MAINTENANCE, REPAIR：

EPS system had already inspected by strict quality restriction before delivery, so it has high reliability.

But if there is no inspection or maintenance as stated time period during in use of EPS, it may cause EPS system work abnormally or spare parts in EPS system are damaged abnormally.

When EPS system work wrong or get malfunction, the malfunction warning and fault code can be indicated on meter.

■ **Malfunction assortment：**

- During long time continuous fast steering, especially when ambient temperature is very high, it may cause ECU radiator of high temperature, and at this time ECU can get through detection temperature sensor's signal to issue ECU over-heating failure warning's fault code to meter. Meanwhile, EPS system fault indicator light is lighten.
- When ECU detected 1# steering torque sensor or 2# steering torque sensor had fault, then it will indicate **1#** steering torque sensor fault or **2#** steering torque sensor fault code to dash board.

  Meanwhile, EPS system fault indicator light is lighten.

  When ECU detected the storage batter's voltage is lower than 9VDC through sensor, it will indicate the fault code of storage battery voltage low to dash board. Meanwhile, EPS system fault indicator light will be lighten.
- When ECU detected motor is out of work through sensor, it will indicate fault code of dynamic motor without power warning to dash board. Meanwhile, EPS system fault indicator light is lighten.
- When ECU detected the speed sensor had fault, it will indicate vehicle speed sensor fault code to dash board. Meanwhile, EPS system fault indicator light is lighten.
- When ECU detected its own fault and can not be work normally, it will indicate EUC stop working code to dash board. Meanwhile, EPS system fault indicator light is lighten.

■ **To drive UTV at every time, need to do daily inspection of EPS system**

Before drive UTV at every time, need to do daily inspection as following steps.

1. Check steering system's mechanical part of each part's interval.

- Check steering wheel is loosened or not**.**

Move steering wheel and Check whether is loosen or with squeak through axis direction and horizontal direction. If defection found, repair or replace it.

- Steering wheel's range of free clearance is**：0-15mm（0-0.59in.）**

If the free clearance is over range, check spare parts as below, any defection found, replace it. Any defection found, replace it.

- Steering tie rod ball head is whether to wear down。
- Swizzle ball of knuckle wear out or not
- Gear rack on steering wheel wear out or not
- Spline on steering drive shaft is loosen or not
- Between input and output shaft's reducer whether had idle running.
- The steering system checking in steering process:

Turn the steering wheel from left to right and right to left .it required smoothly and no blocking allowed.

2. Check steering power in static condition

Let UTV stop on the level road, steering wheel is placed in a straight forward position.

- Check tire inflation pressure whether meet specified requirements (see tire instructions or UTV user manual).
  If necessary, refill it.
- Check front wheel's front beam, wheel offset positioning whether is correct (see UTV user manual).
  If necessary, adjust it.
- Open the main switch.
- Turn the steering wheel left and right successively, turning force on both sides should be equal.

Turn the steering wheel to rotate back and forth; turning shall be smoothly, no block, no recoil forces which opposite of operation force.

If any problem found, it must driven to dealer and repair it immediately.

3. Steering force's checking during running conditions：

- During running process, the feeling of steering force to the left and right must be consistent.
- During steering, turning shall be smoothly, no block, no recoil force which opposite of operation force.
- During return process, the return force is equal to the velocity at both left and right directions.

If any problem occurs, it must driven to dealer and repair it immediately.

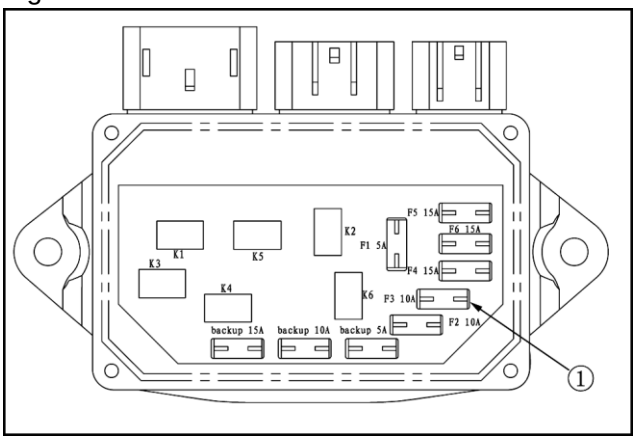
■ Solutions for common fault：

1. Open the main switch, no auxiliary power of left and right steering.

S/N	FAULT PHENOMENON	FAULT POINT	SOLUTION
1	Meter warning fault code:F00010	Special fuses of ECU is blown in fuses box (see figure 1), Or ECU is damaged	Replace fuses. To dealers for repair
2	Meter warning fault code：F00001&F00002	Sensor is damaged or sensor's connector with bad contact or ECU is damaged	To dealers for repair

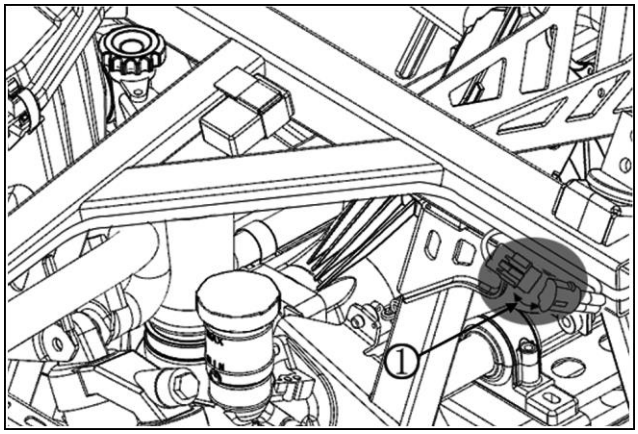
3	Meter warning fault code：F00005	Low voltage in storage battery	Charge storage battery, replace it if necessary.
4	Meter warning fault code：F00003	Motor is damaged or driving circuit in motor is damaged or power motor special fuses are blown.	Replace fuses, to dealer for repair
5	No electrical power connected	Main fuses melted.	Replace fuses
6	No meter alarm, UTV can electrify	ECU initialization choose pin connector with poor contact (sees attached figure 2), or in the wire cable is disconnect	Reinsert well, replace connector or repair cables.
7	No meter alarm	ECU is damaged	To dealers for repair.

Figure 1：Fuses box



① ECU dedicated fuse

Figure 2：ECU initialization connector's position



① ECU initialization connector

2. Open the main switch, only steering left or right is power-assisted.

S/N	Fault phenomenon	Fault point	Solution
1	No meter alarm	ECU damaged	To dealers for repair.
2	Meter warning fault code：F00001 or F00002	Sensor damaged, sensor's connector with bad contact or ECU damaged	To dealer for repair.

3. All have auxiliary power to turn left or right, when turned the steering wheel is not smooth, locked, backswing and other feelings.

S/N	Fault phenomenon	Fault point	Solution
1	Steering system mechanical parts has the big gap	Steering system mechanical parts become loose or damaged.	Retighten loose bolts. Replace damaged spare parts.
2	Mechanical parts without gap	ECU damaged, or the ECU software program has error.	To dealers for repair.

4. When running, all have power-assisted to turn left or right, when return ability is slowly or during return processing out of nimbleness.

S/N	Fault phenomenon	Fault point	Solution
1	Meter warning fault cod：F00011	The speed sensor damaged, or from meter to ECU transmit speed signal ‘s guide wire broken circuits or ECU connectors is loose	Replace speed sensor. Check and repair cables. Replace connector assembly.
2	No meter alarm	Positional parameter of steering wheel (front wheel) error.	Adjust front wheel’s positional parameter.
3	No meter alarm	EPS system’s speed reducer damaged	To dealers for repair.

5. All have power-assisted to turn left or right，but steering become more heavy.

S/N	Fault phenomenon	Fault point	Solution
1	Meter warning fault code：F00006	ECU radiator overheat, ECU reduce the power of the motor‘s output torque automatically, or ECU‘s inside temperature alarm sensor damaged.	Remove dirt or another covering on shell of ECU. To dealers for repair.

2	No meter alarm, steering becomes more difficult if no power.	Mechanical steering system's spare parts are damaged.	Adjust、repair damaged spare parts.
3	No meter alarm	ECU damaged, or the ECU software program has error.	To dealers for repair.

6. All have power-assisted to turn left or right，the power of steering to left and right is different.

S/N	Fault phenomenon	Fault point	Solution
1	No meter alarm	Two channels' parameters of sensor changed	Replace sensor or go to dealers for repair.
2	No meter alarm. No power-assisted the power of steering to left and right is different	Mechanical steering system's spare parts are damaged.	Adjust、repair damaged spare parts.
3	No meter alarm	ECU damaged, or the ECU software program has error.	To dealers for repair.
4	No meter alarm	The initialization parameter of ECU has error.	Restart initialization for ECU

7. Open main switch, steering to the same direction automatically.

S/N	Fault phenomenon	Fault point	Solution
1	No meter alarm	Sensor is loosen	To dealers for repair.
2	No meter alarm , Sensor no loosening.	The initialization parameter of ECU has error.	Restart initialization for ECU

■ **Maintenance and repair's supplemental description:**

1. Restart initialization to ECU parameter:

- Park UTV on the flat ground and keep the front wheels to be forward always.
- Pull-out initialization selects connector. (See Page 12-9)
- Push UTV back and forth for several times, and flap the wheels for several times.
- Open the main switch and wait for 5 seconds.
- Reinsert pin connector to finish the ECU parameter initialization process.

Then, open the main switch; check whether the fault is removed. If it is not removed, follow the previous steps of initialization process. Because the different mechanical clearance of UTV, it may require 3-5 times to be repeated in order to get the correct initialization parameters.

If a customer complaint" vehicle deviation", it should take into account the fault causes not only includes the EPS system fault, also includes a chassis mechanical failure, customers may use" Deviation" to describe a specific situation. So four wheel alignment need to be adjusted at first time, then ECU replacement and repair needed.

2. The Fault of closing function

The main objective to research and develop EPS system is needed to ensure that the vehicle is still controlled by driver when malfunction happened. Therefore we will not allow any directions (clockwise or counterclockwise) suddenly appear bigger undesirable steering torque.

Therefore, the EPS system has many monitoring function, used to identify the sensor, actuator and the involvement of the EPS system function whether is malfunctioning. All cannot continue to reliable accurate control motor malfunction will lead to the interruption of motor control ECU, then closed function of EPS system.

Close the EPS system's bad results will also cause the driver can not obtain power steering.

But close measure is mainly used for preventing error control motor.

When fault occurs, power steering disappear is a predetermined EPS system response characteristic. Although the driver may feel the characteristics of some accidents, but increases the control force, can ensure the vehicle steering performance is not affected. Neither the EPS steering system nor hydraulic power steering system, when fault occurs, power steering will disappear. When a fault occurs, the two systems reaction will be similar. This fault occurs, EPS system fault indicator light inside of meter will be lighten. If above circumstances happened, EPS system will be no power steering, and through the instrument to show the corresponding fault code and remind driver to take care.

3. The software function forms' limit position

Although the mechanical structure of the EPS system has mechanical limit position, it is still possible for EPS system to realize the function of decreasing steering power before reaching the mechanical limit position in form of slope curve. Although the customer will feel the steering resistance increases, when turned to the limited position process will become obviously more smoothly.

In addition, it can also reduce the steering system's mechanical and electrical components' load, which helps in obtaining reliable function and long service life.

■ EPS system Periodic maintenance

For primary use after 50 hours, adjust EPS system part of parameters according to the steering system's clearance variation and chassis changes. Please go to the dealer for alignment.

For every 100 hours using time, according to the steering system and the chassis changes, adjust EPS system relevant parameters.

CAUTION

Before adjust ECU for every time, please check the clearance of mechanical part and adjust four wheels fixed position of UTV.

EPS SYSTEM PARAMETER TABLE

■ EPS system basic technical parameters

■ EPS system working conditions

1. Working environment temperature：

-40℃～＋85℃

2. Working voltage：(9～16V) DC
3. The seal type：IP65
4. Input shaft rotation angle：large than ±1.25rmp
5. Wheel rotation speed：
   10round/min～15round/min

■ **Motor assy basic parameters**

- Type: DC permanent magnet control motor
- Rated working time: 3 min/per time
- Rated power：170W(nominal value)
- Rated operational voltage: 12V DC
- Rated motor revolving speed：（1050r±300r）/min
- Rated operational current：30A±3A
- Rated output torque ：1.6N·m±0.16N·m

UNIVERSAL SYMBOLS

As a guide to the operation of your vehicle, various universal symbols have been utilized on the instruments and controls. The symbols are shown below with an indication of their meaning.

Safety Alert Symbol

Fuel

Engine coolant-Temperature

Parking Brake

Battery Charging Condition

Engine Oil-Pressure

Turn Signal/Hazard

Differential Lock

Position light bulb

Lift Cylinder-Retract

Lift Cylinder-Extend

Lift Cylinder-Float

Hazard Warning Lights

Master Lighting Switch

Audible Warning Device

Fault indicator light of EPS system

2WD/ 4WD

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Hisun Motors Corp., U.S.A.
Emission Control System Warranty Statement

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The U.S. Environmental Protection Agency and Hisun Motors Corp., U.S.A. (hereinafter "HISUN") are pleased to explain the emission control system warranty on your Off-Road vehicle. New off-road motor vehicles must be designed, built and equipped to meet U.S. EPA Federal and California anti-smog standards. HISUN must warrant the emission control system on your vehicle for 5,000 km, or at least 30 months, whichever comes first, provided that there has been no abuse, neglect or improper maintenance of your vehicle. This off-road vehicle was designed to meet the emission standards for 10,000 km, or five years, whichever comes first.

Your emission control system warranty covers components whose failure would increase an engine's emissions of any regulated pollutant

Where a warrantable condition exists, HISUN will repair your vehicle at no cost to you, including diagnosis, parts and labor.

If an emission-related part on your vehicle is defective, the part will be repaired or replaced by HISUN. This is your EMISSION CONTROL SYSTEM WARRANTY.

NOTICE! Use of this vehicle in any type of competitive event completely and absolutely voids this and all other warranties offered by HISUN.

OWNER'S WARRANTY RESPONSIBILITIES

As the vehicle owner, you are responsible for the performance of the required maintenance listed in your owner's manual. HISUN recommends that you retain all receipts covering maintenance on your vehicle, but HISUN cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

You are responsible for presenting your vehicle to the HISUN dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

As the vehicle owner, you should be aware that HISUN may deny your warranty coverage if your vehicle or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

If you use your vehicle in any type of competitive event, this warranty is immediately and completely void.

If you have any questions regarding your warranty rights and responsibilities, you should contact Hisun Motors Corp., U.S.A., 1434 Patton Place, Ste. 106, Carrollton, TX 75007 (Phone: 972-446-0760 or Toll Free: 877-838-6188), or the U.S. Environmental Protection Agency at 2000 Traverwood Drive, Ann Arbor, MI 48105.

Hisun Motors Corp., U.S.A.
Limited Warranty on Emission Control System

YOUR WARRANTY RIGHTS AND OBLIGATIONS

Hisun Motors Corp., U.S.A. warrants that each new off-road vehicle:

A. is designed, built and equipped so as to conform at the time of initial retail purchase with all applicable regulations of the United States Environmental Protection Agency, and

B. is free from defects in material and workmanship which cause such vehicle to fail to conform to applicable regulations of the United States Environmental Protection Agency for the periods specified above.

I. Coverage. Warranty defects shall be remedied during customary business hours at any authorized HISUN dealer located within the United States of America in compliance with the Clean Air Act and applicable regulations of the United States Environmental Protection Agency. Any part or parts replaced under this warranty shall become the property of HISUN.

II. Limitations This Emission Control System Warranty shall not cover any of the following:

A. Repair or replacement as a result of
- (1) accident,
- (2) misuse,
- (3) repairs improperly performed or replacements improperly installed, unless performed by a HISUN authorized dealer,
- (4) use of improper replacement parts or accessories not conforming to specifications set forth by HISUN, which adversely affect performance and/or
- (5) Use in competitive racing or related events.

B. Inspections, replacement of parts and other services and adjustments required for required maintenance.

C. Any vehicle equipped with an odometer or hour meter on which the odometer mileage or hour meter reading has been changed so that actual mileage cannot be readily determined.

III. Limited Liability

A. The liability of HISUN under this Emission Control System Warranty is limited solely to the remedying of defects in material or workmanship by an authorized HISUN dealer at its place of business during customary business hours. This warranty does not cover inconvenience or loss of use of the vehicle or transportation of the vehicle to or from the HISUN dealer. HISUN shall not be liable for any other expenses, loss or damage, whether direct, indidental, consequential or exemplary arising in connection with the sale or use of or inability to use the vehicle for any purpose. Some states do not allow the exclusion or limitation of any incidental or consequential damages, so the above limitations may not apply to you.

B. No express emission control system warranty is given by HISUN except as specifically set forth herein. Any emission control system warranty implied by law, including any warranty of merchantability or fitness for a particular purpose, is limited to the express emission control system warranty terms stated in this warranty. The foregoing statements of warranty are exclusive and in lieu of all other remedies. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

C. No dealer is authorized to modify this Limited Emission Control System Warranty issued by HISUN.

IV. LEGAL RIGHTS. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

V. This warranty is in addition to the limited vehicle warranty.

VI. ADDITIONAL INFORMATION. Any replacement part that is equivalent in performance and durability may be used in the performance of any maintenance or repairs by the owner. However, HISUN is not liable for these parts. The owner is responsible for the performance of all required maintenance. Such maintenance may be performed at a service establishment or by any individual. The warranty period begins when the vehicle is placed into service.

If you have any questions regarding your warranty rights and responsibilities, you should contact Hisun Motors Corp., U.S.A., or the U.S. Environmental Protection Agency at 2000 Traverwood Drive, Ann Arbor, MI 48105.

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1434 Patton Place, Ste. 106
Carrollton, TX 75007
Phone: 972-446-0760
Fax: 972-446-0765
Toll-Free: 877-838-6188

WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

HISUN

GRAB SOME SUN

HISUN MOTORS
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McKinney, Texas 75069

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hisunmotors.com